The IRON AGE

August 28, 1958 A Chilton Publication The National Metalworking Weekly

Check All Angles In Judging Machine Replacement P. 49

Preview of '59's Steel Labor Crisis – P. 17

What New Tax Laws Mean to Your Business – P. 22

Digest of the Week – P. 2-3

ARISTOLOY

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GEAR STEEL

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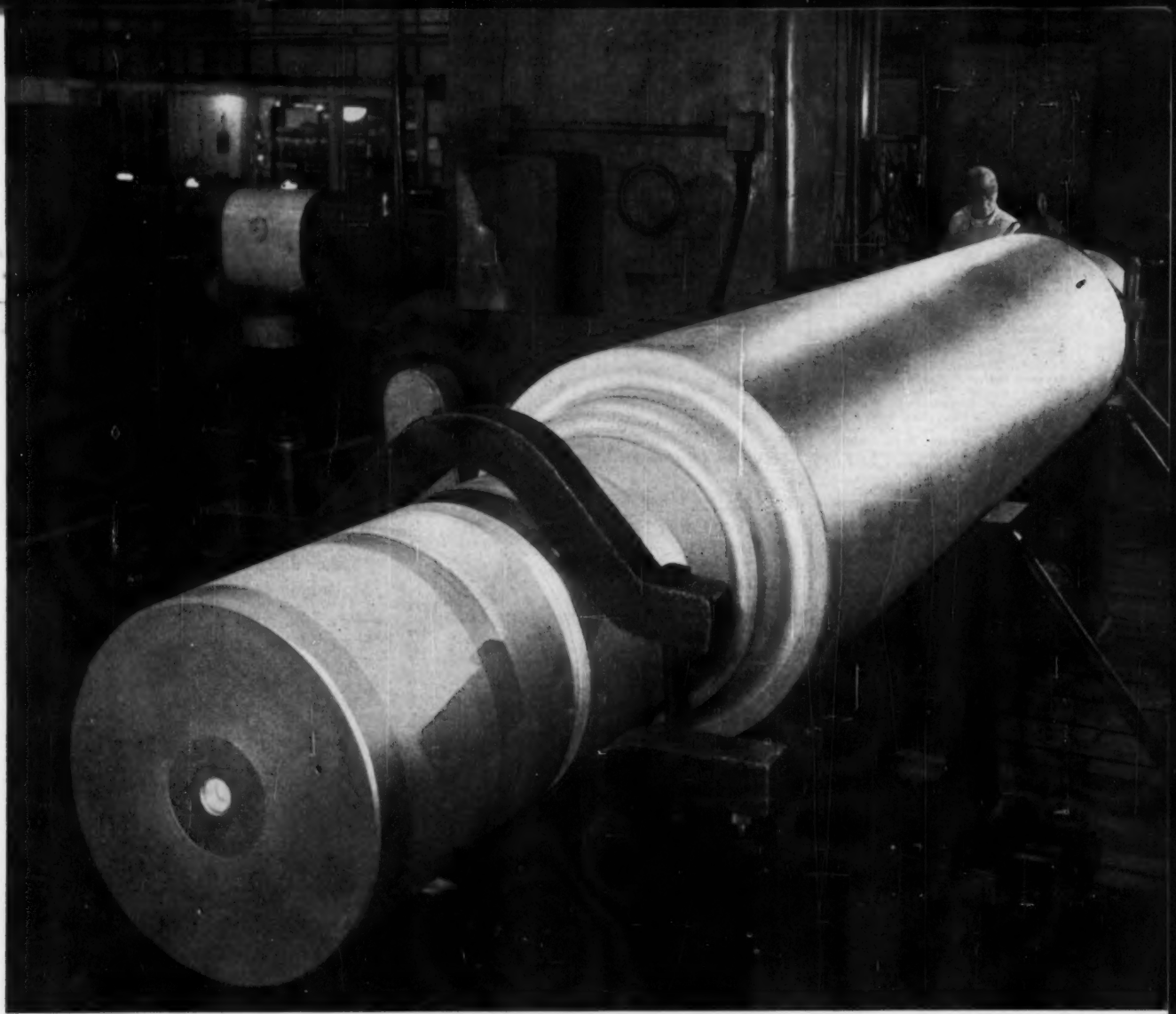

Keyway milling prior to finish-grinding.

It sets a new record

This isn't the largest forging ever to come from the Bethlehem shops. But it *is* the largest forged work-roll we've ever produced for rolling of metals.

Its weight is a record 34 tons. And its length is even greater than the photo might indicate. From end to end the roll measures just about 24 ft. It has a working face of approximately 14 ft and a body diameter of 38 in. When finished and installed, it will be used for rolling aluminum plate and sheet.

In contrast, Bethlehem often makes rolls so small that they can be lifted by hand. You can get virtually *any* size or type of forged, hardened roll, simply by giving us specifications. Whether you need one roll or a hundred, Bethlehem can do the job right—and prices are always competitive.

TYPICAL USES FOR BETHLEHEM FORGED-STEEL ROLLS

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- **Running-down and finishing operations on copper and brass sheets**
- **Hot- and cold-rolling aluminum sheets**
- **Cold-rolling aluminum foil**

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The IRON AGE

August 28, 1958—Vol. 182, No. 9

Digest of the Week in

*Starred items are digested at right.

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NEWS ARTICLES

STEEL LABOR

Showdown Coming—With Dave McDonald beset by union politics, and steel determined to halt the

wage-price spiral, the buildup is already on for 1959 steel labor negotiations. IRON AGE editor-in-chief analyzes the upcoming fracas. P. 17

NEW ENGINE PLANT

Loaded With Electronics—Ford's new Lima, O., engine plant is the last word in automation. It makes maximum use of electronic controls and inspection devices. P. 20

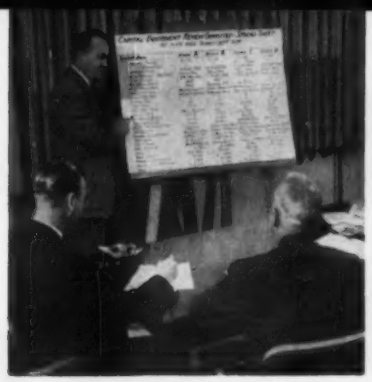
TAX LAWS

Small Business Gains—New tax bill is aimed mostly at small business. But others can gain from some provisions. Benefits don't come automatically. It will take some effort. P. 22

S-P SURVIVAL PLAN

Bold Steps—To stay alive, Studebaker-Packard Corp. is revamping its entire marketing concept. Packard and Scotsman lines will go. In

Metalworking



REVIEW MACHINES: Equipment replacement formulas are only half the story. Members of Equipment Review Board at A. O. Smith Corp. make maximum use of own experience before deciding to replace. For names of members check article. P. 49

their place will be a new compact car aimed at the low-price market. P. 32

FEDERAL DEFICIT

It's Snowballing—A $12 billion deficit is almost a certainty in the current fiscal year. The Administration would like to reduce it by election time, 1960. P. 37

FEATURE ARTICLES

MACHINE REPLACEMENT

Use Business Sense — Even staunch supporters of equipment replacement formulas don't always find clear-cut answers. It takes reliance on experience and an intuitive "feel" of the situation to make intelligent decisions. P. 49

INSTALL MILL

In Record Time—A production delay of just 21 days was allotted for installation of a continuous 6-stand, 30-in. billet mill. Because of careful planning and preliminary work done beforehand, the job was done in 20 days—a full day less than called for. P. 52

CORROSION INDEX

Shows Rust Pattern—A new rust index records the rates at which rust eats through uncoated steel panels in 523 U. S. cities over 100,000 population. It's the result of a study conducted over the past 25 years. It's a means for determining protective standards for wide geographic areas. P. 54

RUSSIAN METALWORKING

Where Is It Headed?—A prominent American metallurgist gives a first-hand account of his recent visit to Russia on a technical mission. He finds the Soviets using up-to-date methods. P. 57

HARDENING STEEL ROLLS

Use Close Control — For one firm producing steel rolls from 5 to 60,000 lb, it takes versatile equipment to handle such a range. From forging steps through hardening and finishing, close control gives the rolls the ability to stand rugged service. P. 60

MARKETS AND PRICES

NEW SUPPLIER DISCOUNTS

They Are Sales Lure—Steel service centers are out to woo buyers with new, more liberal warehouse quantity discounts. They hope to land larger orders and attract customers now buying at mills. P. 24

WEST COAST OUTLOOK

Still Bright—Many Farwest business leaders believe the third quarter for their firms will equal or better second quarter results. Majority in recent survey expect third quarter to reach 1957 levels. P. 39

SURPLUS TOOLS

Flood Diverted—Of the 12,000 or so machine tools the government will declare surplus this year, about 10,000 will go into the Tools for Schools program and a national equipment reserve. P. 41

STEEL UPTURN

Faster Than Expected—The fall pickup in steel orders is moving ahead faster than most had dared hope for. Orders for many items are running ahead of production. P. 87

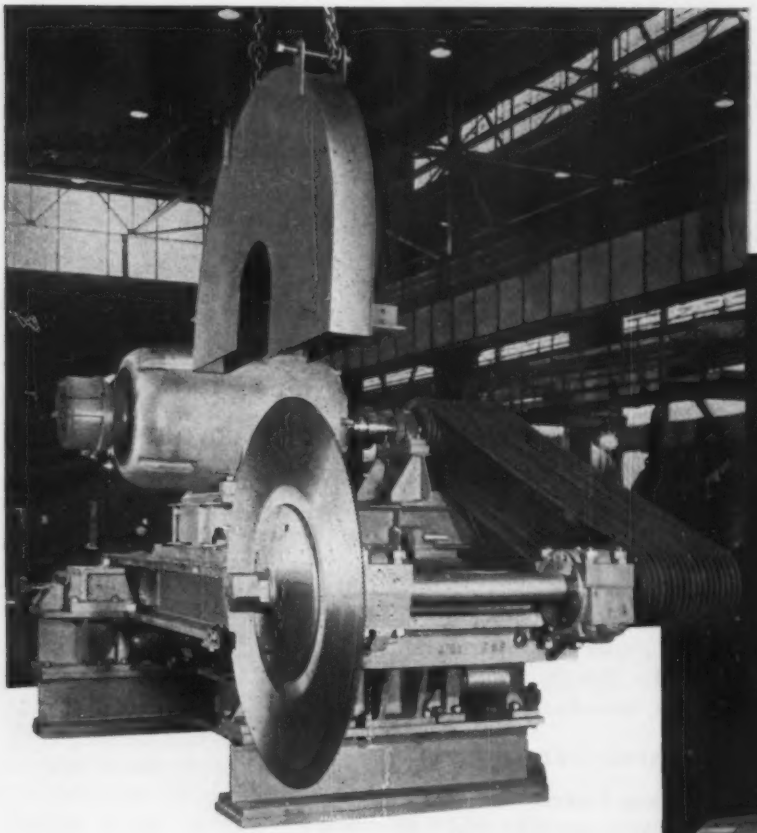
PRESS PRICES

Probably Upward Bound—Cost pressures will probably push press prices up within the next 60 to 90 days. But, unlike some tentative hikes in January, the new batch will be for keeps. P. 88

NEXT WEEK

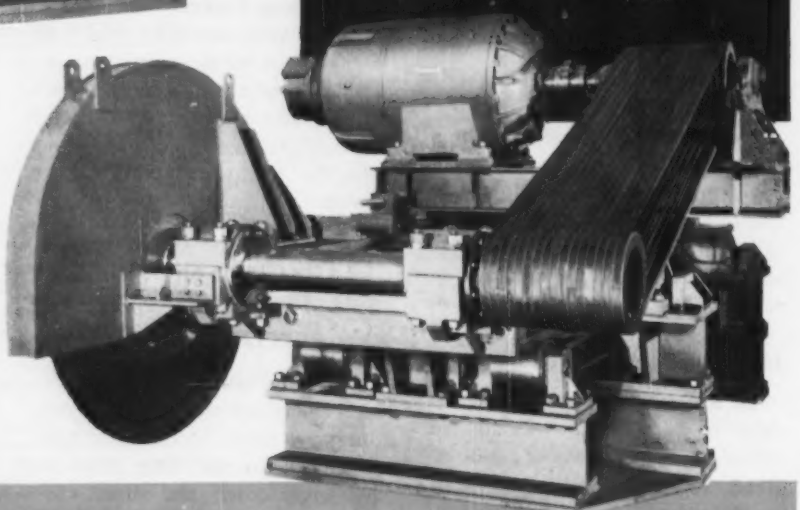
RUSSIAN STEEL

Market Analysis—How will the Soviet Union's growing steel industry affect the Free World in years to come? The question will be discussed by Editor G. F. Sullivan, based on his observations during a recent tour of Russian mills.



Auxiliary Equipment by Pittsburgh

HOT SAW



Hot Saw with 66" diameter blade

Ferrous and non-ferrous metal processing plants have numerous pieces of auxiliary equipment built by Pittsburgh Engineering Division. The Hot Saw illustrated typifies the manufacturing versatility of our shop. Specifications include: cuts up to 7" O. D. carbon steel solid rounds at approximately 1000° F.; direct belt drive; hydraulic feed control; and low maintenance costs. Consult Pittsburgh for your special requirements in auxiliary mill equipment.

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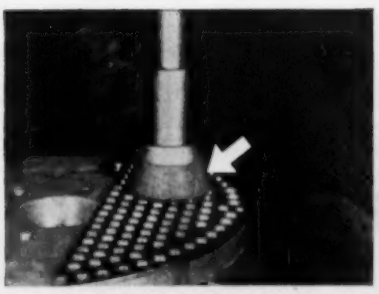
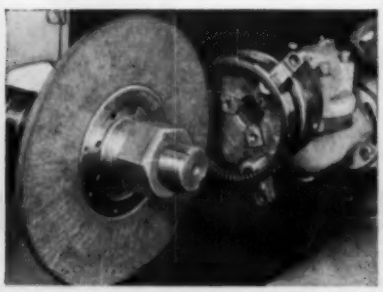
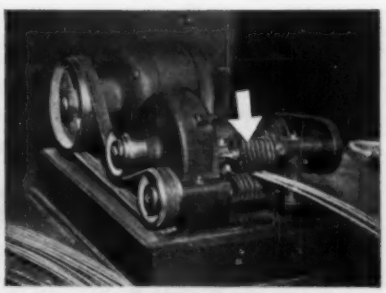


DEBURRING EDGES OF HOLES *on surface of tube sheet is done faster . . . more thoroughly with Osborn TY Cup Brush on Osborn's Brushamatic® 51-1L Machine.*

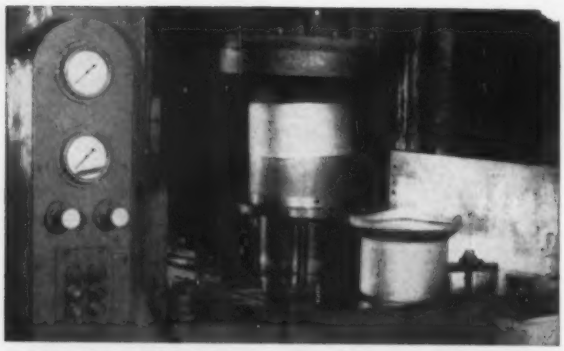


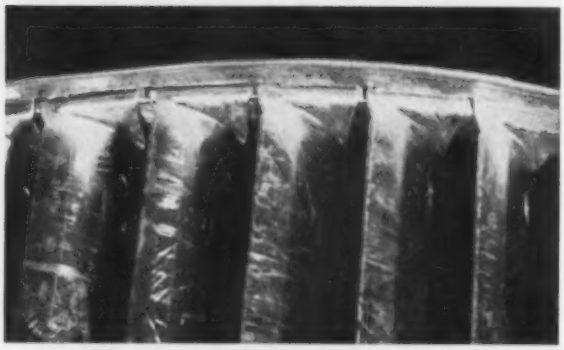
BLENDING GEAR TOOTH EDGES *and deburring in a single precision operation is done with Osborn TY Monitor® Brush running at 1750 rpm on Brushamatic® 3A Machine.*

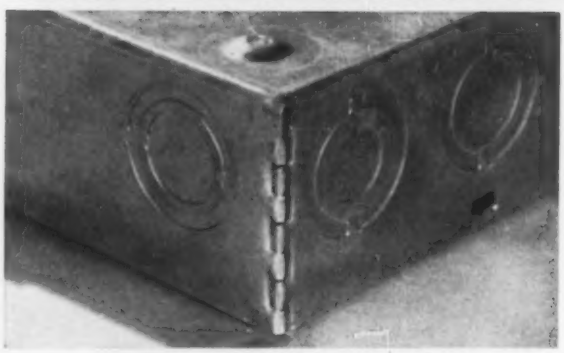


WIRE STRIPPING *is fast, uniform, low cost with Osborn TY Insulation-Stripping Brushes that fit standard wire stripping machines . . . such as dual-stripper shown.*

Draw, Form, Interlock or Pierce Armco ZINCGRIP Steel– Its Special Zinc coating stays on







Workable zinc-coated Armco steel offers opportunities to cut production costs, add sales points to your products.

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By Any Other Name Inflation Is Still Bad!

This is no economic treatise on classical or legal inflation. But, if you want a do-it-yourself course, check your savings book or your savings bond dates. If you have either of these items, figure what they would have purchased on the date you deposited your money or bought your bond. Then see what their worth will do for you today. That's inflation without any fancy names, titles or explanations.

Some wiseacres will say, "Well, since you are making more money you can afford to pay higher prices." That's a slick answer.

All people did not get the same raises in the past several years during EOTD (erosion of the dollar). Some got no raises, others got a little help, and some lucky fellows in the power-managed unions got plenty.

Those living on investments or pensions know what inflation is. Those who plowed their money into savings banks years ago know what inflation is. Those who had to wait too long to buy a home know what inflation is.

Strangely enough, many of those who know all this seem to agree with the "experts" that a little inflation isn't bad. We even have high-toned stories that a $12 billion deficit isn't too bad. How fuzzy can we get?

The latest move of the Federal Reserve Board is a symbol of what is ahead. The august members of this almost ethereal body fear the worst. Having cut the rediscount rate to get the economy going, they must now raise it to try to keep the "thing" from breaking loose.

They will have no more luck taming inflation in the future than they had in the past unless there is a general awakening of the menace among those who should know better. The idle pastime of calling inflation something nice is deception. Most people have enough of a struggle with their job, kids, future and keeping alive, let alone study up on inflation.

But those to whom the people look for guidance had better take their responsibilities more seriously. We cannot afford a flight from the dollar. If the people ever get the idea that the only haven of safety is stocks, property, antiques and "things", the jig is up.

And if the erosion of the dollar continues to bring about an erosion of character in the face of responsibility, then heaven help us!

Tom Campbell

Editor-in-Chief

Man's Eternal Struggle with the Machine

THE GUIDED MISSILE IS A VAST COMPLEXITY OF SYSTEMS FOR GUIDANCE, TELEMETERING, CONTROL, PROPULSION, ETC.

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Sure you would . . . and so would everybody else!

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LETTERS FROM READERS

Big Steel's Story

Sir—Will you please grant us permission to reproduce the article, "Why 'Big Steel' Is Successful," on pages 40 and 41 in your Aug. 14 issue?

We would like to reproduce 50 to 100 copies for distribution to security analysts in investment houses in the financial community.

This article is valuable for the information it contains on how one company is working at improving efficiency and modernizing. We find a lack of understanding about this aspect of steel industry growth and progress.—C. H. Herrold, Vice Pres., Mellott, Pitney, Rowan & Co., New York.

▪ Permission granted.—Ed.

Cast Iron Standards

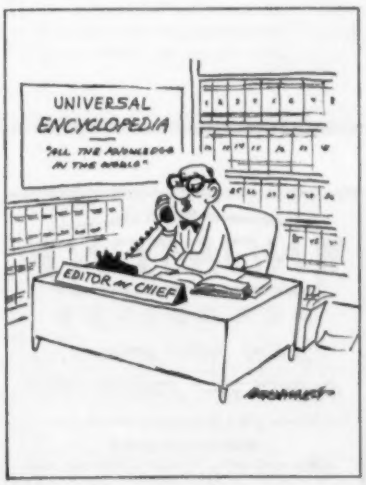
Sir—I was interested in your article, "U. S. Lags in World Standards" appearing in the July 31 issue. I was particularly interested since I was chairman of Committee A-3 on Cast Iron of the Amer. Soc. for Testing Materials during the past two years and currently am chairman of a new subcommittee on international standards for cast iron.

As you probably know, the ASTM and, I would suspect, other standards groups, do not have funds to send delegates to ISO meetings. It is usually the custom for the employer of the delegate to stand the expenses. I strongly suspect that for some of the European countries participating in ISO activities the delegates' expenses might be paid by a government.

I question the validity of the second paragraph in your article which indicates that the pipe purchased by Venezuela was based on recommendations of the ISO. Most of the efforts of the ISO on cast iron have been in the field of design of test specimens and testing procedures for such specimens. If you have any information such as the identity of the cast iron pipe maker who lost the order to Venezuela or are aware of the specific reasons where U. S. specifications differed from the ISO I would appreciate hearing from you.

Concerning the sale of pipe to foreign countries, there are a lot of economic reasons or purchasing arrangements which are unfavorable to U. S. producers. But the pipe purchased from European producers is often sold through cartels and the purchaser often has no choice of manufacturer.—D. E. Krause, Gray Iron Research Inst., Columbus.

▪ Information on the cast iron pipe order lost because of ISO standards came directly from the technical director of the American Standards Assn.—Ed.



"Relax, Dear — I can explain everything."

Table Turning

Sir—Please send me two copies of your Special Report on "Workers Turn Tables; Step Up Complaints Against Unions." This is a very good article and should put both union and management on their toes.—F. S. Degler, Hofmann Industries, Inc., Sinking Spring, Pa.

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for
deep drawing

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If you have a problem with thin strip, let Somers experience help you. Write for confidential data blank or field engineer.

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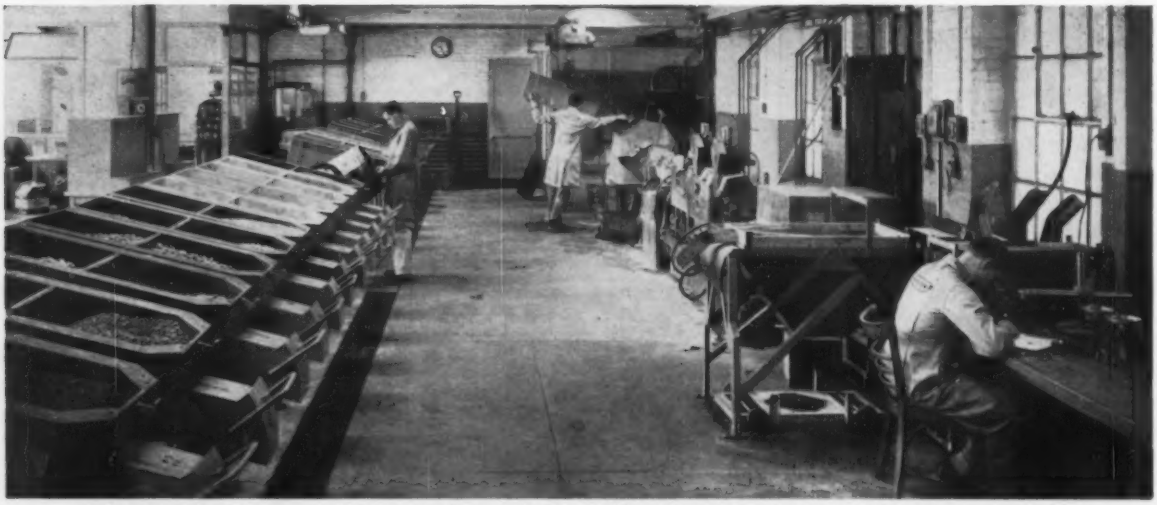
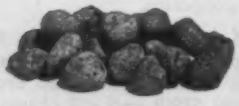
Now's the time...here's the place



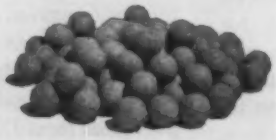
The big Norton Sample Processing Department solves your finishing problems with a wide variety of tumbling equipment . . . and the right abrasive to do the job.

to find the tumbling abrasive you need

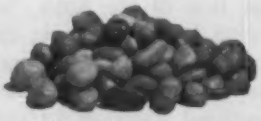


ALUNDUM® TUMBLEX® "A" Abrasive. For general barrel finishing. Removes flash, scale, tool marks and burrs, while forming radii and finishes to required micro-inches. Seventeen sizes.

ALUNDUM TUMBLEX "T" Abrasive. Bonded, triangular and fast-cutting for special shaped parts. They won't wedge in work slots or holes. Four sizes.



ALUNDUM TUMBLEX "S" Abrasive. Bonded spheres that get into areas where other shapes can't reach. Exceptionally dense and long lasting. Five sizes.



TUMBLEX "N" Abrasive. Natural stones, exclusively Norton. For high lustre, especially on die castings and soft metal. Rounded shape brings up highest lustre. Seven sizes.

G-341

If you're still finishing metal parts the long, hard way, now's the ideal time to find the fastest, most effective barrel finishing equipment, methods and abrasives.

For example, one leading aircraft parts manufacturer reports saving over $90,000 yearly by shifting from hand-finishing to barrel finishing with Norton TUMBLEX abrasives.

There's one sure way for you, too, to get these cost-cutting, product-improving "Touch of Gold" advantages. Your metal parts can range from tiny needles to hefty forgings . . . may be simple or complicated, hard metals or soft . . . may require deburring, descaling, better color and closer finish. Just send sample parts to our Sample Processing Department. They'll be returned to you completely finished to requirements, with a detailed report. Or, next time you're in our area, drop in and learn how your finishing can be improved.

NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors all around the world.

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Making better products . . . to make your products better

NORTON PRODUCTS
Abrasives • Grinding Wheels • Grinding Machines
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Coated Abrasives • Sharpening Stones
Pressure-Sensitive Tapes

FATIGUE CRACKS

Steel Industry—USSR

Next week Editor George Sullivan will give readers a first hand, analytical look at Russia's growing steel industry. He's just finishing up a 16-page report on his recent trip with other U. S. experts through steelmaking and mining centers in the USSR.

During his month long tour there were few idle moments for sightseeing in areas like the Kremlin (see photo). But there was plenty of time for close observation of Russian metals equipment and production techniques. And time for talks with Red industrial bosses.

For a comprehensive summary on Editor Sullivan's findings read his article in the Sept. 4 issue.

On to Michigan

If you're attending the Michigan State Fair at Detroit this week and next, stop by at the scrap industry's exhibit.

Sponsored by the Michigan chapter of the Institute of Scrap Iron & Steel, it shows a ladle into which are dropped scale models of old cars, trucks, and other items. Out the other end flow new automobiles, refrigerators, and airplanes.

Called "The Eternal Harvest," the exhibit illustrates the rebirth of steel scrap in new products. Also included at the booth are photo transparencies showing the steps in incinerating and baling an entire automobile.

Sounds like a good exhibit. Worth a visit if you have the opportunity.

Come in, Africa

Postcard advertising a book—"The United States and Africa"—came in the other day. We didn't know where to route it because the address was "African Director, The IRON AGE."

We've got district editors in many cities. There are correspondents in others, including one in England. Editor George Sullivan recently returned from a 6500-mile trip through Russian metal plants. Editor-in-Chief Tom Campbell has filed eye-witness reports on such far away areas as Sweden and South America.

But African Director? No one has claimed the postcard. It's just sitting here waiting for someone to step out of the veldt — someone eager to brush up on "The Character and Viability of African Political Systems" and other subjects.

Suntan Aids

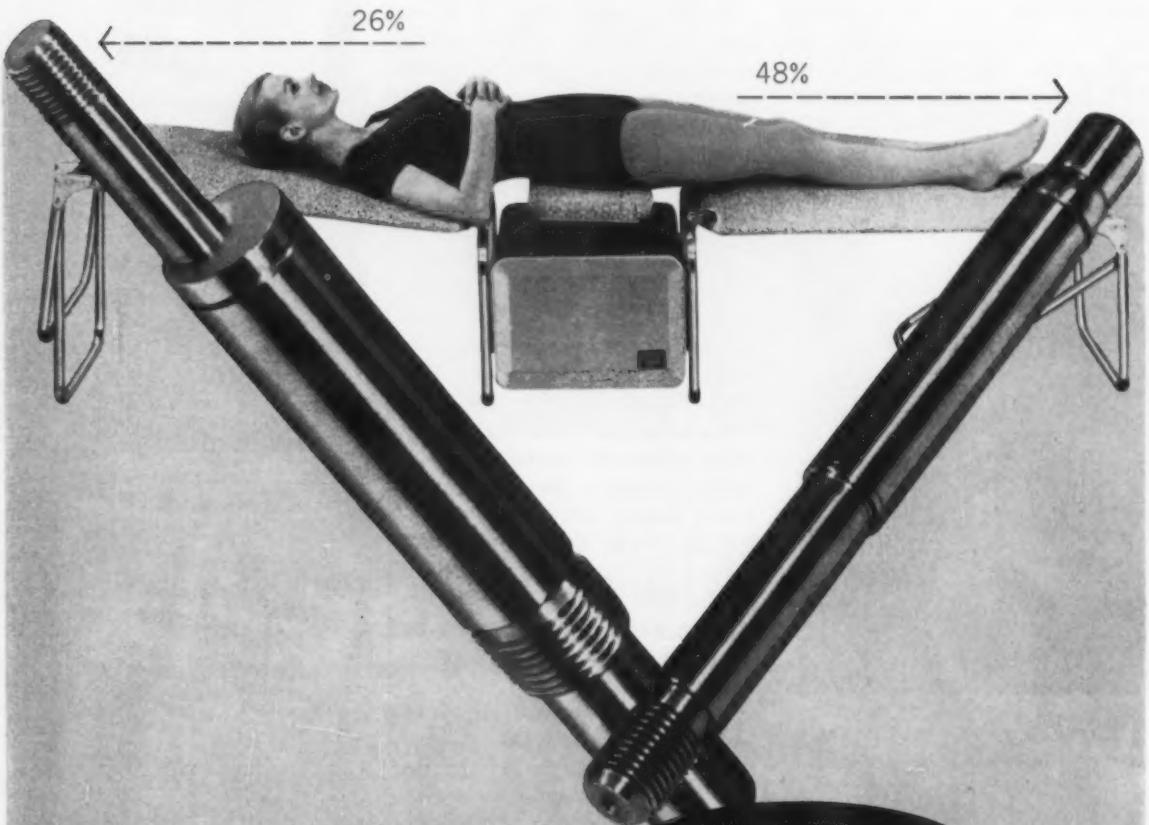
Then there's the Sun Tan Tree, a "unique new outdoor living accessory for sun tanning, toning, and relaxing." It's nine ft tall with colored metal leaves which can be turned to reflect the rays of the sun. Inventor was a Barry Shipman and it's being introduced by the Karl Lightfoot Studios, Pasadena, Calif.

And there's more to the Tree than suntan alone. By using the bright silver leaves you can cook a ten pound roast—with potatoes—in about three and a half hours. Works well, too, for hot dogs, hamburgers, roast corn, or biscuits, providing the sun is shining.

DEFIES HEAT
ABRASION...
FATIGUE...
LEAKS
FLEXIBLE TUBING
FOR INDUSTRY
High temperatures and pressures? Exposure to crushing, abrasion, expansion, contraction? Name your operating conditions for air, water, steam lines, for conveying volatiles, gases, chemicals, powder, granular and semi-solid materials. Penflex can meet them with flexible bronze, galvanized and stainless steel corrugated and interlocked tubing. All types, all sizes. 1/8" to 24" I. D. Ask for booklet. Pennsylvania Flexible Metallic Tubing Company, Inc. 7210 Powers Lane, Phila. 42.
PENFLEX
TIGHT AS A PIPE BUT...
FLEXIBLE

SHE is improving her figure on a Stauffer "Magic Couch." And although she doesn't know it, Stauffer makes two of the Magic Couch's most important operating parts from La Salle ground and polished STRESSPROOF® steel bars. This means that her Magic Couch will last longer, will be more dependable.

Stauffer reduces cost figures, too!



Stauffer reduces part costs 26% and 48% by using ground and polished *La Salle* STRESSPROOF® STEEL BARS WITH COPPER

ELIMINATES Heat Treating

This eccentric shaft . . . and this idler shaft, two of the most important parts of Stauffer's Magic Couch, were formerly made of heat treated C-1137. But Stauffer design engineers recommended a change to La Salle ground and polished STRESSPROOF® steel bars . . . with copper.

The result: no need for rough grinding . . . no need for heat treating. Production costs were reduced 26% on the eccentric shaft . . . 48% on the idler shaft.

La Salle ground and polished STRESSPROOF® can help your per-part cost. It gives high strength without heat treating . . . it machines 50% to 100% faster than heat treated alloys . . . it minimizes warpage . . . it makes a better part at a lower cost.

To find out how STRESSPROOF® can help you, just write for a copy of Helpful Data Bulletin No. 15, "Improve quality . . . cut costs" . . . or for production applications ask for a sample bar for test purposes.

La Salle STEEL COMPANY

1436 150th Street, Hammond, Indiana

COMING EXHIBITS

Chemical Show—Sept. 9-12, International Amphitheater, Chicago, (National Chemical Exposition, 86 E. Randolph St., Chicago 1.)

Iron & Steel Show—Sept. 23-26, Cleveland Public Auditorium, Cleveland. (Association of Iron & Steel Engineers, 1010 Empire Bldg.. Pittsburgh 22, Pa.)

Western Tool Show — Sept. 29-Oct. 3, Shrine Exposition Hall, Los Angeles. (American Society of Tool Engineers, 10700 Puritan Ave., Detroit 38.)

Packaging & Materials Handling Show—Oct. 14-16, Coliseum, Chicago. (SIPMHE, 327 LaSalle St., Chicago 4.)

Metal Show — Oct. 27-31, Public Auditorium. Cleveland. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

Plastics Show—Nov. 17-21, International Amphitheater, Chicago. (The Society of the Plastics Industry, Inc., 250 Park Ave., New York 17.)

MEETINGS

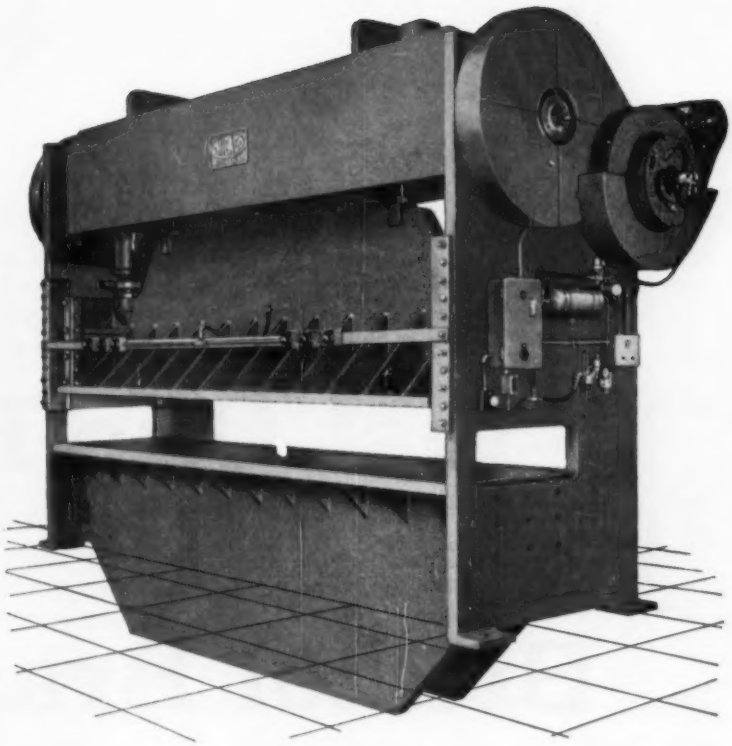
SEPTEMBER

National Petroleum Assn.—Annual meeting, Sept. 10-12, Hotel Traymore, Atlantic City, N. J. Society headquarters, Munsey Bldg., Rm. 958, Washington, D. C.

The Malleable Founders Society—Semi-annual meeting, Sept. 19, Hotel Cleveland, Cleveland. Society headquarters, 1800 Union Commerce Bldg., Cleveland 14.

Steel Founder's Society of America—Fall meeting, Sept. 22-23, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland 13.

The Material Handling Institute, Inc.—Joint industry fall meetings—Sept. 22-24, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, Suite 759, One Gateway Center, Pittsburgh 22.



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STRAIGHT-SIDE TYPE

large die area

capacities up to 400 tons

This is a typical model of CHICAGO straight-side-type presses used for multiple punching, notching, and trimming operations. This press with a die area of 48 inches by 198 inches has a capacity of 200 tons.

Complete recommendations for any job on request.

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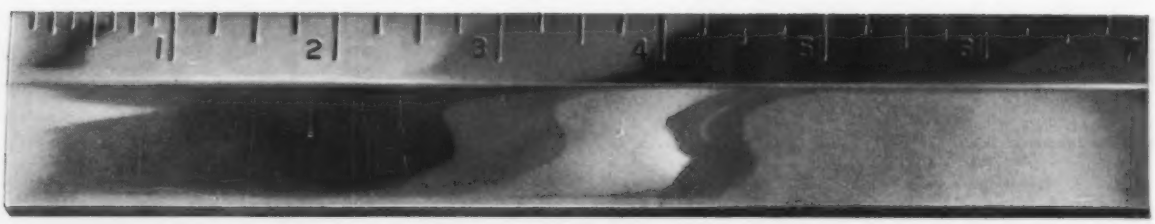
There's just One Rule at Bristol Brass...



To make every pound of strip, rod and wire the way we would want it, if we were buying it

Bristol-Fashion
means Brass at its best

THE BRISTOL BRASS CORPORATION • SINCE 1850, MAKERS OF BRASS STRIP, ROD AND WIRE IN BRISTOL, CONNECTICUT
Bristol Brass has offices and warehouses in Boston, Buffalo, Chicago, Cleveland, Dayton, Detroit, Milwaukee, New York, Philadelphia, Pittsburgh, Rochester, Syracuse.

Fast Grinding Saves Inserts

Instead of disposing of throwaway insert tools, one firm is resharpening them at 1/30th of their replacement cost. An electrolytic grinding process renews cutting edges in less than a minute. The firm's engineers estimate that more than 60 pct of all throwaway inserts can be reclaimed by the method.

Steel Buyers Check Margins

Alert steel buyers are doing more advance booking and are getting ready to add a bigger safety margin to their inventories. Discussing the expected lift in steel operations, one buyer points out that steel deliveries stretch by months, not weeks. As lead times increase, he says the timing of shipment arrivals becomes less certain.

Dip Mold for Large Castings

Unpublished reports on dip-mold investment castings suggest the process will open new markets for complex steel castings of sizes exceeding 70 lb. Tensile strengths already are well above those of conventional investment castings and appear to be rising.

Expose Front Line Delay

Landings in Lebanon exposed an armament weakness in U. S. means of dousing brushfire wars. Ground combat forces sent into the beachhead were carrying some out-of-date weapons. Example is the M-1 rifle, the standard World War II weapon. Lighter, faster-firing M-14 was officially adopted in 1957, but quantity production has not been arranged. Fighting units won't get the new rifle until 1960.

Cut Auto Tooling Costs

With economy uppermost in Detroit, automotive firms are turning to retooling, modification, and rebuilding of manufacturing facilities for '59 models to an unprecedented extent in reducing costs. This is in sharp contrast to '54-'55 period of economic uncertainty when auto firms announced huge capital expansion programs. Some plants are reported to have gone as far as halving the personnel in tool and process engineering groups.

U-Type Bulldozer Blade

An increase in handling capacity of 50 pct is claimed for the fitting of a U-blade attachment to a tractor moving coal. The design of the blade permits a bigger load of light material to be moved over a longer distance without excessive spillage at the ends of the blade. It's equally suitable for use with almost any loose material.

More Lead for Space Travel

Lead shielding 1/16-in. thick doesn't stop radiation, reports from outer space show. Government scientists say data being radioed back from Explorer IV indicate a belt of intense radiation, starting about 1200 miles up. New and better shielding must be developed before humans can survive a trip through this radiation belt.

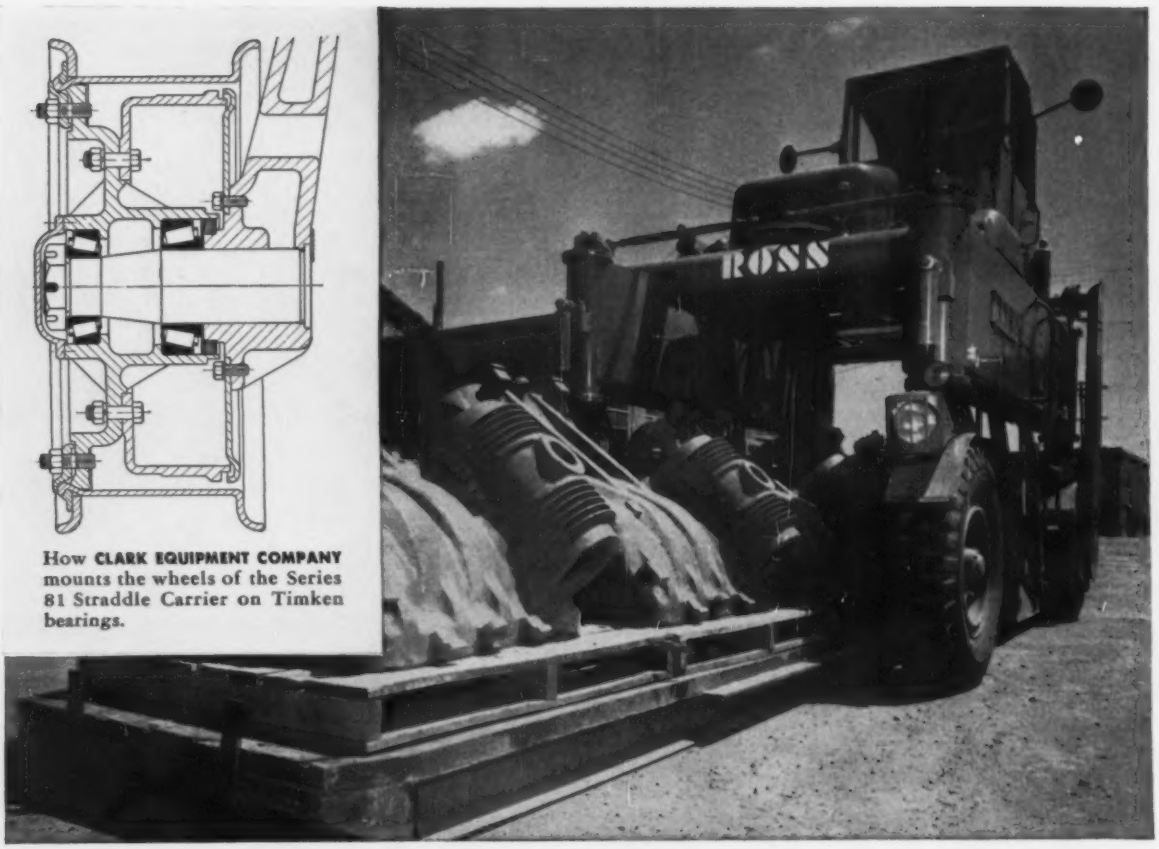
Breakthrough in Crystals

Perfect silicon crystals larger than a man's finger are now a reality. In making these crystals, scientists have disproved a prevalent idea that dislocations have to be there for crystals to grow. They have opened a door that may lead to making dislocation free, and perhaps superstrong, crystals of a variety of materials in large sizes.

Warning on Red Trade

Government business experts are warning firms to beware in exercising new permission to trade with Russia and other Communist countries. They warn that in the past the Reds have bought a few articles, copied them, and then flooded normal U. S. export markets as part of their economic offensive. They expect the Reds to order general purpose machine tools, but warn that these are particularly susceptible to copying.

How **CLARK EQUIPMENT COMPANY** mounts the wheels of the Series 81 Straddle Carrier on Timken bearings.



Pay load: 10 tons—Top speed: 42 m.p.h. Wheel bearings: Timken®

WHEN this Clark-Ross Series 81 Straddle Carrier hoists 10 tons and scoots it 42 mph, terrific loads are placed on the wheels. To take *all* the loads, Clark engineers specified eight Timken® tapered roller bearings.

Timken bearings are tapered to take radial and thrust loads in any combination. No additional thrust devices are needed—not even when the Carrier makes a turn. Timken bearings take the shock loads, too, as no other bearing can. Rollers and races are *case-carburized* to give hard, wear-resistant surfaces and tough, shock-resistant cores. And the full-line contact between Timken bearing rollers and races gives *extra* load-carrying capacity.

There's less maintenance with Timken bearings. Closures are more effective because shafts are held concentric with housings. Dirt stays out; lubricant in. And you get longer bearing life because Timken bearings are geometrically designed to roll true and precision-made to live up to their design. Timken bearings practically eliminate friction.

When you build or buy machines of any type, do as Clark Equipment Company did for this Straddle Carrier. Insist that the trade-mark "TIMKEN" be on the bearings. It's your symbol of BETTER-ness! The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

BETTER-ness rolls on **TIMKEN**® tapered roller bearings

"I will NOT resign! We may be in a fight for our lives as a union in 1959"

David J. McDonald, USW President

Showdown Ahead for Steel Labor

Union politics and general economics put USW in a corner.

Steel's goal: Prevent a continuation of wage-price spiral next year. — By Tom Campbell.

▪ Already boiling underneath, the steel labor outlook for next year suggests a knock-down-drag-out fight, the hardest one since the famous pension dispute back in the late '40's.

Word that Dave McDonald, Steelworkers' chief, will step down, as predicted in a "Fortune" article, seems to have come from the wrong cloakroom. Nothing could be further from Dave McDonald's thoughts—or from his backers, who will have a comfortable majority at the Steelworkers convention in the next few weeks.

Dave's Problems—Further, there will be no election for a new president of the USW until 1961.

For the past three years, at least, Mr. McDonald has been the butt of many wry sayings in private. Because of this, the rumor mill has been working overtime. Some of the things ascribed to Mr. McDonald are hardly any different from that what any labor man, or management man, passes through from time to time.

Be that as it may, Mr. McDonald has to face the toughest time of his career next year. Not only must he try to get a good package so he will enhance his chances for re-election, but he must live down rumors that he isn't tough enough to lead the steelworkers.

Enemies Now Friends—Some of Mr. McDonald's past enemies in the union are now on his side. The fact that Mr. I. W. Abel, quiet-spoken vice president of the union, was mentioned in the "Fortune" article, kind of puts the finger on him. But so far as is known in management and union circles, Mr. Abel has no intention of trying to unseat Mr. McDonald.

Dave's flair for showmanship, which may be an unconscious effort to make up for the difference between him and the late Phil Murray, has given rise to much of the cloakroom talk about him. It also gives some steel management people a chance to talk as though they knew the inside dope on the union—which most of them don't.

Dave is hot-headed. If he gets too riled up at the next USW convention in September, and treats any routine gripe about salaries and

dues as a personal affront, he will hurt himself. His friends have driven him into a corner and talked turkey to him.

Must Produce—Even some of his good, but anonymous, friends in the steel industry have given it to him straight about things they felt were hurting him with the union—and with the steel industry. His identification with management's social symbols doesn't go down too well with many steel workers.

But over and beyond his immediate personal troubles is the necessity for Mr. McDonald to get the steelworkers a boost that will help him get re-elected to his $50,000 a year, plus-expense-account job.

Probably Dave's greatest headache will be the solid front the steel industry will put up against him and his ordinarily high demands. This is the time, steelmen say, to make a dent in the long, upward march of wage and fringe increases which have pushed up the price offered.

Dave vs. Roger — One thing is certain: The steel boys will put Dave on the rack to the point of almost ruining him if it means they can get the wage demands down to a simple and small increase that is in line with productivity gains as the industry understands productivity.

Lest you get the idea that Dave McDonald is the only fellow with troubles in 1959, forget it. The steel presidents have their hands full too. But the one man in steel who has the toughest job of all in the coming fracas is Mr. Roger Blough, U. S. Steel board chairman. In a way, he is on the spot as much as is Dave McDonald.

Tough Talk — Next year some people are going to act and talk like the steel men of old.

Many steel leaders feel this is the time to use the full impact of public opinion, the economic outlook, and the need to end wage spirals. They want also to take full advantage of the supposedly "difficult" position of Dave McDonald.

Blough's Position — Mr. Blough is a soft-spoken lawyer who has none of the over-cautiousness of most corporation lawyers. He has absorbed some of the give and take in the steel industry. But for all his gentlemanly behavior, he is also hard as nails when he thinks he is right—and fair.

At least Mr. Blough must make good on the exceptionally telling points he has been making in speeches about the high-handedness of labor's power. He has made it quite plain that the wage spiral has been out of proportion to productivity, and because of that, price increases have become a must if firms were to stay in business, buy equipment, and make a profit for their stockholders. But his main point is that the yearly round of wage and price increases has to stop.

Time to Stand—Next year Mr. Blough, through his negotiator and through negotiators who will act on behalf of other steel firms, frankly will have to put up or shut up. Latest view is that he will put up.

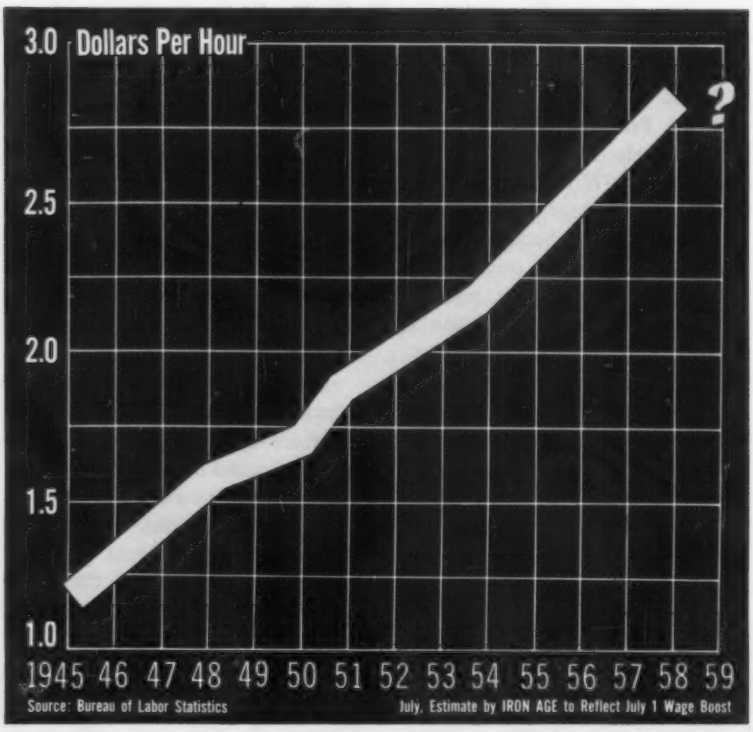
It is by no means a sure thing that he would go as far as attempt to wreck the union in a fight to stop the yearly wage round.

True, what happens in the auto fracas this year will have something to do with steel. But since the auto fellows pushed steel out in front years ago, next year is a private fight between steel leaders and the steel union.

Second Guessing Critics — One thing which will possibly give Mr. Blough the jitters is the fact that if he stands firm and agrees with the others to take a long and bitter strike, he may be accused of blocking the recovery. This would come from the very same sources who told him not to raise prices.

Can Steel Halt the Wage Spiral?

Average Hourly Earnings in Steel


3.0
Dollars Per Hour
2.5
2.0
1.5
1.0
?
1945 46 47 48 49 50 51 52 53 54 55 56 57 58 59
Source: Bureau of Labor Statistics
July, Estimate by IRON AGE to Reflect July 1 Wage Boost

Average hourly earnings do not include wage supplements. An industry estimate in 1956 estimated these supplements to amount to 43.3¢ per hour.

All this is another way of saying that other steel leaders will not be able to tell in advance just what Mr. Blough will or will not do, except that he will fight to the last ditch against a big wage and fringe package that would require another round of steel price increases. But as to what the last ditch is—that's the question.

Hold that Line — There is no question as to what the last ditch is to some other steel people. They feel that the industry should decide that there shall be no wage increase in excess of a productivity increase —and by that they don't mean 3.5 pct. They feel deeply that currently used productivity figures are greatly inflated. One of the big fights next year will be on productivity, what it is and, who did it.

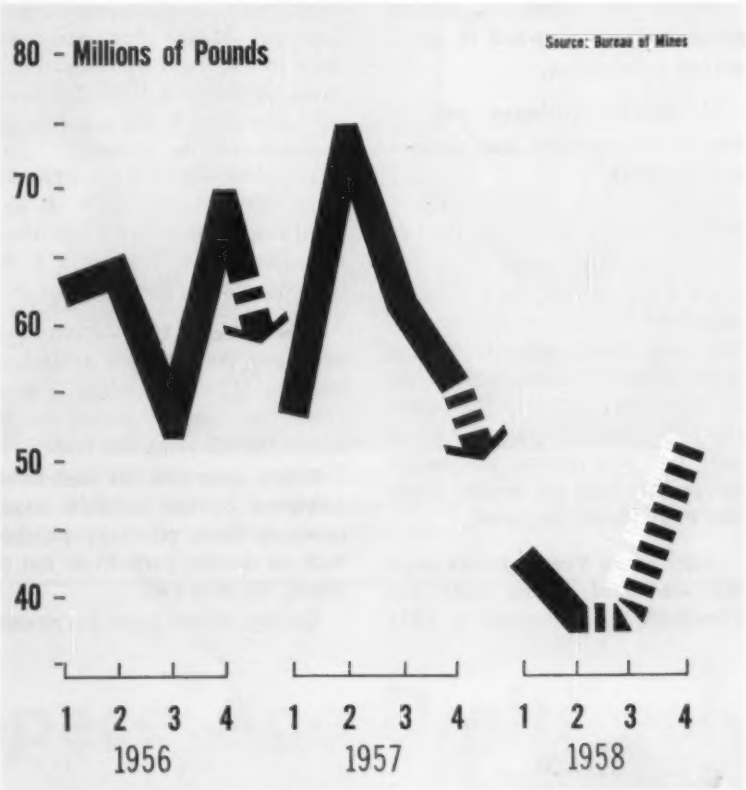
Next year's steel labor's negotiations are going to take a lot of planning—on the part of the steel industry. It is doubtful if some of the very ones in government and industry who have been calling for a slam bang, last ditch fight to stop the yearly wage increases will have the guts to carry it all the way through.

The steel people have the heritage which would indicate they have what it takes. So does Mr. Blough, whose benign appearances are deceiving. But whether he would be willing to bust the union in this final attempt to stop the wage rounds is another matter. The best that can be said now is that he will be fair—in a cold, calculating, courtroom sort of way—but fair nonetheless.

The Outlook—If the steel union puts it over on the steel industry next year, then the biggest chance to cut the union down to size will have been missed.

The way things stack up now: Mr. McDonald will not by any means get what he wants and asks for. The steel industry will get a hearing and perhaps an inning. It will get "A" for effort, but in the last ditch fight enough will be left over to save face for Dave McDonald and probably re-election.

Nickel Upturn Is Due



Expected Comeback in U. S. Consumption

▪ A substantial pickup in nickel buying may be on its way. Industry sources believe business will take a sharp upward turn in the fourth quarter and continue possibly throughout 1959.

International Nickel Co., the world's largest nickel producer, expects nickel buying to increase about 25 pct in the final three months of this year. The signs are there, says Lars R. Larson, Inco vice president and general sales manager.

Two Main Factors—One is the current condition of consumer inventories. Another is an expected increase in demand from the automotive industry.

Consumer inventories have dwindled from 48 million lb at the beginning of the year to about 22 million lb as of July 31. Mr. Larson believes these are normal working stocks, and not likely to be cut further. It means bigger buying, without even considering improved customer business.

Auto Prospects—The part automakers will play does not depend entirely on how many 1959 models they can sell. Gripes from auto owners, and the improved availability of nickel, are prompting automakers to put heavier coatings of nickel plate on parts of 1959 cars.

Nickel is boosting its penetration of the stainless steel market as well. Stainless sales in the second quarter were up 11 pct over the first quarter. And nickel-bearing types improved their share of the market from 65 pct in the first quarter to 70 pct in the second.

New Plant Banks on Electronics

Ford's new Lima, O., engine plant is the last word in automated production.

It makes maximum use of electronic controls and inspection devices.

■ Electronics is picking up the ball where automation leaves off.

At Ford Motor Co.'s recently unveiled Lima, O., engine plant the two have been combined into the most advanced engine plant in the company and probably the industry. New electronic gadgets worked into the now-routine automation setups help turn out engines faster and more closely inspected.

After Seven Years—Ford's original automated engine plant was Cleveland No. 1—opened in 1951 and already being modernized. The Dearborn, Mich., plant was renovated in 1953 and Cleveland Plant No. 2 started up in 1955. The year-old Lima plant is the ultimate refinement—for the present.

The plant will turn out 4000 engines daily on two shifts. It has 1100 employees under Plant Manager Clinton D. York with a $6 million annual payroll.

New Switches Used—Ford engineers say the principal differences between Lima and the earlier plants has been in greater use of electronics all along the line.

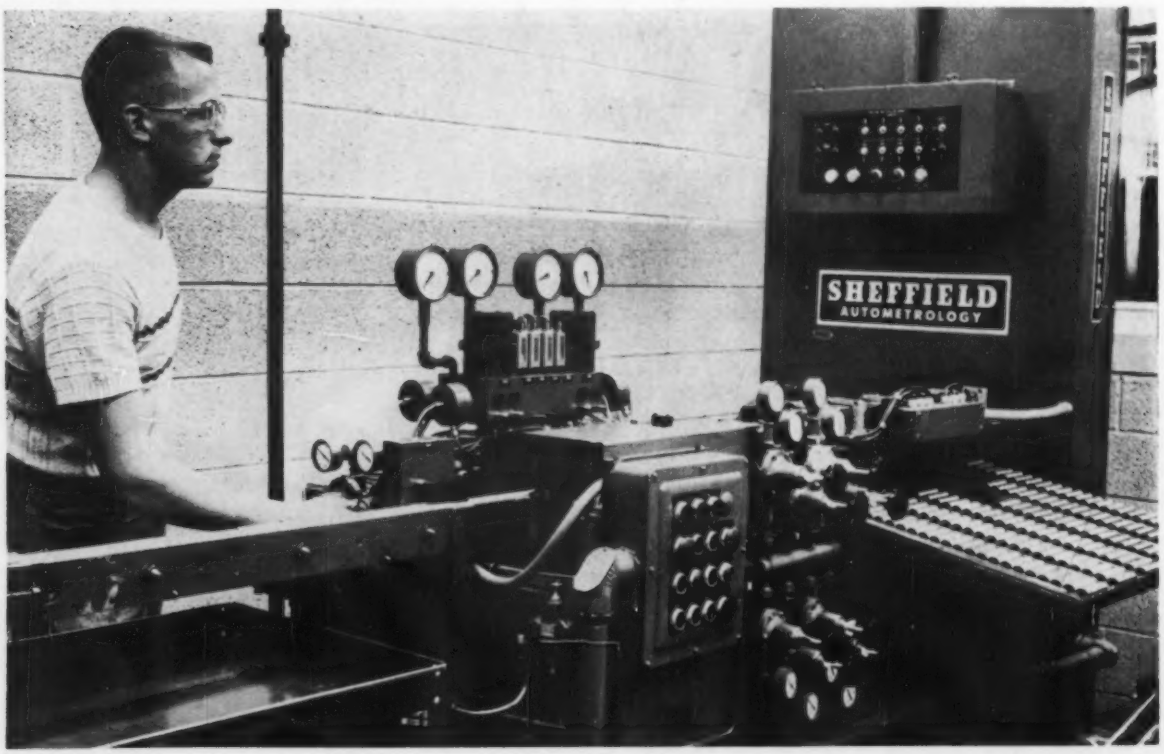
Where limit switches used to be employed by the hundreds along conveyor lines, proximity switches with no moving parts to go out of whack are now used.

Quality control gages are mounted right on processing lines and shut down the works if a faulty crankshaft or other component tries to get past any of 1700 spots.

No Hands—Eighty pound crankshafts are automatically loaded, ground, unloaded and later electronically balanced compared to the usual hand loading.

For the first time every completed engine is balanced electronically while running rather than spot checking.

With no moving parts, maintenance is almost non-existent. Even more important, chances of downtime on a production line for fixing switches is remote. The proximity switches are made by Westinghouse and sell with the relay for about $180 each. They are considered an intermediate step to a new



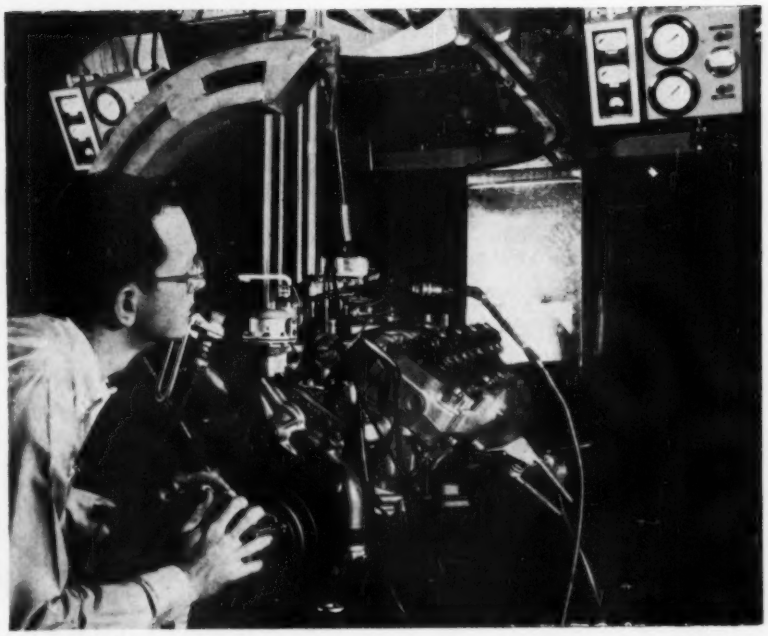
ELECTRONIC EYE: Piston pins are fed into testing device in rapid-fire order at new Ford engine plant.

"Sypak" unit made by Westinghouse. Transistors will also be used soon.

At Lima the switches are mounted along conveyor lines so that the passing cylinder heads, crank shafts, blocks and rocker arm shafts either contact them or just graze them.

Top Engine Line—The engines made at Lima are the most powerful in the Ford passenger car line—the Lincoln, Continental, Mercury and Edsel. The two major sizes are the 383 cu. in. displacement type for the Mercury and Edsel and the 430 in. used in the Lincoln, Continental and Mercury Turnpike Cruiser with a variety of carburetors and other options.

All are run 20 min. before shipping and the 100 pct electronic balancing is a major advance in quality standards.



BALANCING: Electronic unit at Lima engine plant combines engine balancing with hot testing. New technique accomplishes dynamic balancing at high speeds similar to actual operating conditions.

Updating Space Age Draftsmen

▪ Industry has an important stake in making certain that today's drafting students will be ready to handle tomorrow's design problems. Companies with space-age drafting needs are taking a closer look at drafting courses in vocational and high schools.

They want to find out: Are teachers up-to-date on the latest methods and techniques of industrial drafting and design? Are courses modernized to meet the requirements of the 1960's or cobwebbed with ideas from the 1930's and 1940's?

Group Action—Working on the problem in the Philadelphia area is the Design and Drafting Council of Delaware Valley — a volunteer group composed of industrial, educational, and government representatives. It was organized three years ago to improve drafting education, training, and employment in the Delaware Valley.

After study the Council made one early recommendation: Find a way to bring teachers up-to-date on modern drafting methods and needs. This year a specific suggestion was acted on—"refresher" courses for teachers conducted by industrial draftsmen.

Teach the Teachers — Teaching the teachers were men from such firms as Bell Telephone, Burroughs Corp., Philco, Baldwin-Lima-Hamilton, and Phila. Electric. They developed lectures on drafting practices used by fabricators and builders, aircraft manufacturers, electronic equipment makers, shipbuilders, heavy equipment suppliers, utility companies, and civic planners.

Two local colleges—Temple University and the University of Pennsylvania—provided free classroom space. A thirteen-week course was arranged at each university.

Good Response—Response from high school and vocational teachers was greater than expected. Over 130 wanted to attend, but only 80 could be accommodated. During the thirteen weeks attendance averaged above 90 pct at both courses. "In-service" credits—valuable for educational or professional advancement — were earned by 28 teachers. Nine received college credit for the work.

The results, too, were above expectation. More than 80 other Philadelphia area teachers are waiting to take the course this fall. Schools in nearby Chester, Pa., have asked about a similar course for their teachers. Designers and draftsmen in industry also want to attend future sessions.

How Business Fares in Tax Laws

Small Business Gains Most, But Others Also Benefit

Benefits from the new tax bill don't come automatically. It will take some digging to gain full advantage.

Here's a rundown of principal measures.—By N. R. Regeimbal.

▪ Businessmen got some important benefits from Congress this year—if they use them.

In total, businessmen can save more than $400 million in taxes a year, plus many millions of dollars in reduced paperwork, and secure more favorable loans and equity financing as a result of new laws passed this year.

Needs Attention — But few of the benefits will come automatically. Most of the help voted by Congress this year was aimed at small firms. However, many of the beneficial provisions can be used by big firms as well.

Slightly easier depreciation, higher earnings accumulation, longer loss carryback, better treatment on losses in small business investments, stricter stock taxing rules, and some changes in the excise taxes are among the highlights of the new financial laws passed by Congress this year.

Here are some of the principal points in the new laws:

Depreciation — Taxpayers may now take a special 20 pct depreciation deduction on purchases of new or used equipment, facilities, or other assets in the first year, up to $10,000 a year, or $20,000 if a joint return is filed. This is in addition to the normal first year depreciation. The assets must have a useful life of six years or more and be purchased after Dec. 31, 1957.

This provision does not apply to real estate, buildings, or inventory.

A proposal to extend to purchases of used equipment and machine tools the right to fast tax write-offs accorded to new equipment in 1954 was approved by the Senate but killed by House leaders.

Loss Carryback—The small business tax law passed this year will permit businesses with net operating losses in taxable years ending after last Dec. 31, to carry the losses back as much as three years to offset profits and secure refunds. The old limit was two years. Firms may still carry losses forward to offset profits for up to five future years.

Accumulated Earnings—The new law will also permit closely-held firms to accumulate up to $100,000 in earnings without being subject to the special tax penalty on such savings. The old limit was $60,000. This is a total figure, not an annual figure. A proposal to permit a small firm to reinvest up to $30,000 or $50,000 in the business without paying taxes was seriously considered by the lawmakers, but was killed. Sponsors say they'll press for this provision again next year.

Financing—One of the most important actions taken by Congress this year was passage of legislation creating small business investment corporations. A $250 million fund will be set up with which the Small Business Administration will help

What New Labor Act Does—And Doesn't—Do

The watered-down labor bill passed by Congress was the first action in that field for some years. Labeled the Labor-Management Reporting and Disclosure Act, it's not to be confused with the Kennedy-Ives labor reform bill which was killed in the House.

Unlike the Kennedy-Ives measure the new law takes no action on union racketeering. Even this pension and welfare bill which passed is pared down from its original form.

The New Act Does:

Require that pension fund administrators make an annual financial report, including a description of the plan, to every union member.
Permit the Secretary of Labor to recommend the form of these reports, but not enforce use of this official form.
Specify that some form of financial accounting be filed with the Labor Dept.
Request information on funds managed by unions, by management, and by the two jointly.

The New Act Does Not:

Prohibit persons with criminal records from holding executive jobs with union pension and welfare funds.
Provide fines for failure to file pension funds correctly.
Give the Secretary of Labor subpoena and other police powers to force collection of accurate financial reports on fund operations.

finance locally or federally chartered small business investment corps.

These corporations will, in turn, make long term (20 or 30 years) loans to small firms, or invest in convertible debentures of small firms. Interest rates and repayment rules will be set by the SBA in about 60 days. Loans will also be made to state or local development corporations.

Small Business Investments—The new law permits individuals or partnerships investing in small business to count losses up to $25,000 a year as ordinary losses, rather than capital losses as at present, and thus gain an extra tax deduction.

Small Business Taxation—Small corporations with 10 or fewer stockholders are permitted to be taxed as partnerships. This matches an earlier provision which permits some partnerships and proprietorships to be taxed as corporations to gain a tax advantage. In addition, the new law permits estate taxes on small firms to be spread over a 10-year period, a provision designed to permit more small firms to escape death by merger when a principal owner dies.

Other Provisions—Other provisions of the new tax laws prohibit firms from deducting from taxes bribes or kickbacks paid to foreign government officials; permit unused foreign tax credits to be carried back two years and forward five years; permit company pension funds to buy limited amounts of the company's own unsecured debentures and still retain their tax exemption; ease the tax on so-called collapsible corporations, and tighten considerably the rules covering taxes on stock and bond sales and speculation.

In addition, firms which must repay money to the government under contract renegotiation may now get tax refunds for the years in which the money was originally earned. Subcontractors also can get refunds on money they are required to repay to prime contractors.

COPYTRON: Herbert F. Bruning (l.), president of Charles Bruning Co., and Paul J. Bruning, Chairman, look over a print made from 35 mm microfilm in 15 seconds. It is 200 times larger in area than the film.

Copy Industry Meets Growing Demands

▪ A newly-developed electrostatic copying machine may turn out to be just what the industry needs to keep its boom growing.

Made by Charles Bruning Co., Inc., largest independent in the field, the Copytron will deliver full scale copies from microfilm in 15 seconds. Bruning says its price, $9700, is a fraction of competitive machines.

Bruning will manufacture its Copytron in a new $6 million plant near Chicago. Also made in this plant (Bruning has four others) is reproducing stock. Four lines will run 10,000 yd each of coated paper stock per hour.

Moving Up—There have been no major bumps in the road up for the copying industry. In the last 20 years copying equipment makers have multiplied their business by about 10 times. There are now thirty firms in the field. Bruning has tripled in size in the last 10 years. Its sales hit $38 million last year, will top that in 1958.

Another indication of how the industry has grown: In 1949, 24,000 tons of reproducing paper were produced. Last year the total hit 60,000 tons, about 700 million sq yd, worth $70 million.

Big Market — The odds favor continued growth of the copying industry. One major market is blueprints. More complex technology means more blueprints, and more difficult storage problems. For instance, a jet transport requires 50,000 blueprints.

Behind Warehouse Price Policy

They're Out to Attract More Large-size Orders

Steel service centers will use new, more liberal discounts as a sales lure.

The target is customers who are making their purchases at the mill level.

▪ Steel service centers have buyers eyeing the new warehouse discounts and extra charges with rising enthusiasm.

In a drive to boost the size of individual orders and increase their percentage of total steel sales, the service centers are turning a steel base price increase into a price concession.

Some Offset Base Rise—Distributors still charge no quantity extra on orders when more than 2000 lb of hot-rolled steel are bought in a single order. But carrying this a step further, quantity discounts on hot-rolled orders exceeding 5000 lb have been increased from 10¢-$1 per hundredweight to 50¢-$1.50 per hundredweight. In effect, prices on hot rolled orders exceeding 5000 lb are slightly lower than they were before the new base price.

There's been no change, so far, in cold-rolled sheet base or quantity prices. The cold-finished carbon bar base price has advanced, but not the quantity extra. Hot-rolled sheet base prices are unchanged. Hot-rolled quantity extras in the 1000-2000 lb category are up 25¢ per hundredweight. On orders of 400 to 1000 lb, the quantity extra is up 50¢.

Too Much, Too Soon? — One question has already occurred to steel service center executives: Have we given away a little too much? It's not uncommon for a medium or large steel service center to sell 40 pct, or more, of its tonnage in orders exceeding 5000 lb. Small orders are costly to handle. The big orders, until now, have shown a more comfortable profit margin. For an industry which has only begun to show a desired profit return in the past five years, one executive feels, short-range business gains must come in to justify the new pricing.

Reasons Why — Certainly steel service centers are out to recapture the 10,000 and 20,000 lb hot rolled steel orders that have been part of the sales picture in past years. By boosting quantity discounts and encouraging customers to increase order poundages, steel distributors hope to:

(1) Pick up additional customers who now buy from mills. With steel producers constantly increasing output from continuous rolling mills, it's felt there's a growing twilight zone of buyers who represent tonnages no longer economic from a mill standpoint.

(2) Increase large orders which will offset the higher costs of the small quantity orders steel service centers have been handling recently. Many warehouses had to boost the size of order handling departments at a time when actual tonnages of steel they sold were at the lowest level in four or five years.

(3) Use the new price schedules as a direct answer to "in-and-out" steel suppliers who've been cutting prices to capture heavy tonnage orders over the past year.

As with U.S. Steel Supply's "Portland Pricing" (see The IRON AGE, March 20, 1958), the new prices are partly an attempt to tie costs of distribution more closely with warehouse pricing. But, also, they are attempting to increase the number of service center customer.

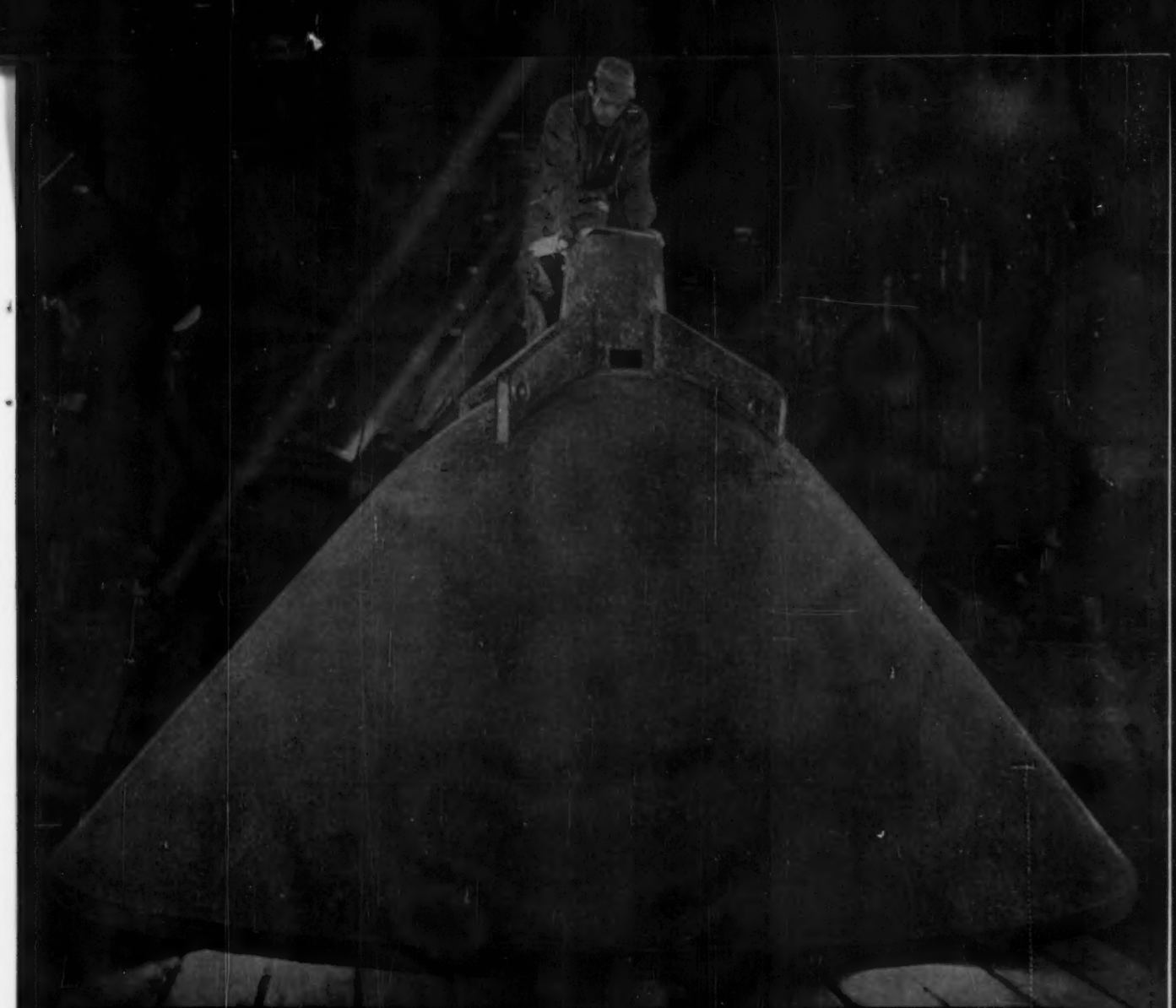
New Discounts, Extras

Quantity Extra Charges (Per Hundredweight)

Order Size	Present (add to base)	Previous	Increase
Under 100 lb	$10	$9	$1
100- 399 lb	$7	$6	$1
400- 999 lb	$4	$3.50	50c
1,000-1,999 lb	$1.25	$1	25c

Quantity Discounts (Per Hundredweight)

Order Size	Present	Previous	Increase
2,000- 4,999 lb	Base Price Used		...
5,000- 9,999 lb	50c	10c	40c
10,000-19,999 lb	75c	30c	45c
20,000-29,999 lb	$1	60c	40c
30,000 and Over	$1.50	$1	50c



16 Ton "Gas Mask" for a Blast Furnace

Diversity in the production of steel castings is routine in the foundries of Erie Forge & Steel Corporation. For example, this cast steel blast furnace bell.

The 16 ton lower bell casting teams up with the one ton cast steel upper bell to distribute solids to the blast furnace without loss of gasses . . . a job which requires high quality steel of accurate as-cast dimensions.

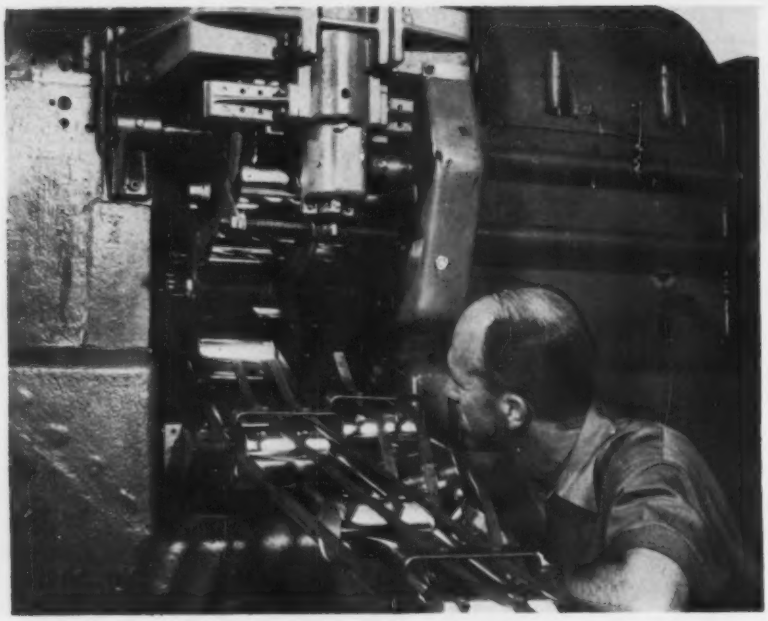
From the beginning of the steelmaking process the raw materials are tested at frequent intervals to assure the quality of the steel . . . careful metallurgical and engineering control from scrap pile to finished casting. This is standard operating procedure at Erie Forge & Steel in the manufacture of steel castings and forgings which meet the widely diverse demands of industry . . . another of the many reasons your Casting and Forging requirements are in competent hands here. Consult with us.

ERIE FORGE & STEEL CORPORATION

ERIE, PENNSYLVANIA

MEMBER AMERICAN IRON AND STEEL INSTITUTE

Two at Once Is Almost Twice as Fast



▪ A new Continental Can Co. technique is 50 pct faster than previous can making methods. At top speed it can turn out 750 cans per hr.

Conventionally, can bodies are formed by wrapping steel blanks around a mandrel. The ends are interlocked and seam welded.

How—The new method merely uses double size blanks to make two cans at once. They are separated along pre-scored lines after they are formed.

The new, two-high line was developed in ConCan's Metal Research and Development Center, Chicago, in 1956. It has been undergoing tests for commercial feasibility.

Next—Now that ConCan knows it works, testing is far from over. If you can make two cans at once, why not three, four and more?

Little Tariff Change

President Eisenhower probably will show no haste in ordering cuts in import duties.

He is empowered, under the trade law he signed last week, to work out trade agreements containing tariff reductions. His authority is aimed to enable him to boost U. S. trade.

Provisions — This authority is granted to the office of the President until June 30, 1962. During that time, tariffs may be reduced 20 pct, but there is to be no reduction of more than 10 pct in one year.

Despite the terms of the new Reciprocal Trade Law, President Eisenhower is likely to show caution in going after cuts in specific tariffs. One reason is language in the law permitting Congress to override his veto of Tariff Commission import curbs. At the same time, he will want more information on the tariff position of the free-trade organization being established in Europe.

Also, the President must consider the effect of imports on individual domestic industries in deciding whether to use the national security clause in the law. This clause permits him to limit imports that are shown to be threats to national security.

Renegotiation Study

The House Ways and Means Committee will begin a thorough study of government renegotiation policy early next year.

Congress this year voted to extend the Renegotiation Act for six months to June 30, 1959.

Subjects—Scope, objectives, and procedures of federal renegotiation of government contracts will be considered, the Ways and Means Committee says. So will possible amendments to the law.

Added to the coverage of the Renegotiation Act is the new National Aeronautics and Space Administration. The law will apply to all renegotiable contracts the new agency takes over from its predecessor, the National Advisory Committee for Aeronautics. It will apply, also, to new contracts placed by NASA, and to related subcontracts.

Atom Smashers

Unusually uniform electrical grade steel, supplied by Allegheny Ludlum Steel Corp., Pittsburgh, helped make possible a new concept in atom smashing.

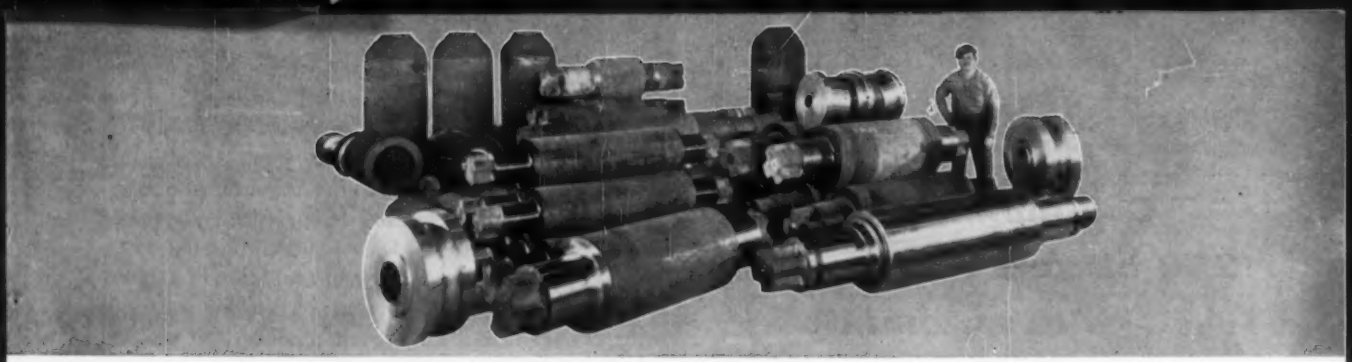
Called "strong focusing", it depends on huge magnets to hold electrically charged protons on course as they hit and break the nuclei of other atoms.

There will be 240 of these seven-ft-long magnets of high uniformity steel in the Synchrotron being built at Brookhaven National Laboratory, Long Island, N. Y.

Clean Air Project

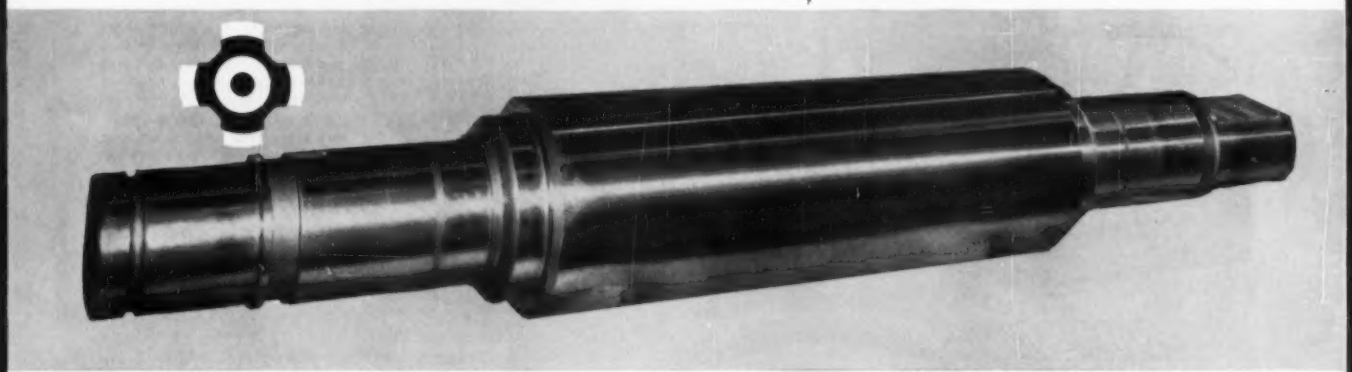
U. S. Steel Corp. is moving right ahead with its clean-air project at its Homestead District Works. When completed early next year, smoke generated in steelmaking furnaces will pass through electric precipitators. Solid particles will receive an electric charge which will cause them to be attracted to collecting plates.

The system is expected to be 95 pct effective.



MAGALOY (nodular iron) ROLLS

FROM 7" TO 42-1/2" DIAMETER



TYPICAL APPLICATIONS

MAGALOY GRADE "A"
(Sclerescope Hardness 30-38)
Piercing Mills

MAGALOY GRADE "B"
(Sclerescope Hardness 45-55)
Blooming Mills • Bar & Billet Mills–Roughers
Rod Mills–Roughers • Plug Mills (5½" and over)
Skelp Mills • Hot Sheet Bounce Mills

MAGALOY GRADE "C"
(Sclerescope Hardness 58-65)
Merchant Mills–Leaders and Finishers
Rod Mills–Intermediate Train • Hot Strip Mills
Cont. Bar & Billet Mills–Intermediate & Finishers
Plug Mills (up to 5½")
Tube Mills–Forming & Welding, Sizing, Reelers
Straightening • Skelp Mills • Edging Mills

MAGALOY GRADE "D"
(Sclerescope Hardness 66-70)
For applications requiring higher-than-average strength and hardness penetration.

• MUCH LESS BREAKAGE • BETTER SURFACE ON ROLLED MATERIAL • LOWER COST PER TON ROLLED • WEARING QUALITY OF GRAIN ROLLS • PHYSICALS EQUAL TO CAST STEEL • UNIFORM HARDNESS PENETRATION • SUPERIOR MACHINING PROPERTIES

A SPECIALIST AND A PIONEER IN NODULAR IRON

One of the first licensees (1951) for nodular iron, Aetna-Standard's foundry has built a reputation as a specialist in these rolls (trade name — Magaloy). In the making of nodular iron rolls, control of penetration is most important. So is the skill of the foundry to deliver the same uniformity of rolls order after order. As a pioneer and a specialist in nodular iron, Aetna's foundry has an excellent reputation among roll users and suppliers, particularly for penetration and uniformity of rolls.

AETNA • STANDARD

THE AETNA-STANDARD ENGINEERING COMPANY

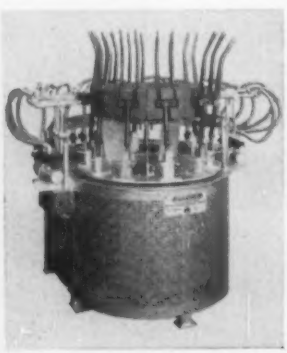
GENERAL OFFICES: PITTSBURGH, PA. • PLANTS: ELLWOOD CITY, PA., WARREN, OHIO • RESEARCH LABORATORY: AKRON, OHIO

CHILLED AND SAND IRON ROLLS • MOLY CHILLED IRON ROLLS • ASEX GRAIN ALLOY IRON ROLLS • ALANITE GRAIN, NICKEL CHILL (A-B-C-D) • RAIL FINISHING ROLLS • MAGALOY ROLLS • TUBE MILL ROLLS & RINGS

Columbia produces 250 bicycle forks per hour with automatic GAS brazing

Gas brazing is not new to Westfield, where Columbia bicycle frames have been brazed with Gas-fired Selas processing equipment for many years. During this time, pre-placing of brass filler material and automatic heating have limited dependence on operator skill, reduced material waste, and eliminated costly cleanup operations. With the installation of the new Gas brazing machine in their production operation, these advantages have been extended to include fork manufacture, also.

For information on how Gas equipment can help you in your production operations, call your Gas Company's industrial specialist. He'll be glad to discuss the economies and outstanding results you'll get with Gas and modern Gas equipment. *American Gas Association.*



Two fork styles in all standard bicycle sizes are joined from eight steel components on this new automatic Selas machine by Westfield Manufacturing Co., Westfield, Mass. Controlled combustion and flame geometry bring the parts to brazing temperature of 1750°F in only 86 seconds, using economical Gas equipment.

Jay Wardle, Jr.

Survival Among Industry Giants

Mr. Wardle doesn't profess to be a giant killer, but he knows how to dent their armor.

His policies at McKay Machine Co. help his firm survive in a competitive market.

▪ How does a small manufacturing company compete against the giants? Here's the way Jay Wardle, Jr., president of McKay Machine Co. of Youngstown, O., has it figured out:

You must out-engineer the big companies, keep in close touch with your markets, and diversify your product line. Good labor relations can help, too.

Unique Approach — "Our company policy is not to build a machine others are building just to get our foot in the door," Mr. Wardle says. "We try to size up the problem and find a unique approach using modern engineering methods. If we can build a machine to turn out a better product at lower cost, the special engineering involved will pay for itself."

Engineering specialists at McKay will travel to Japan, Europe, or the next county at the drop of a hat—and with Mr. Wardle's blessing. The world is getting smaller every day and he sees no point in letting markets shrink with it.

Started at Bottom—This forward thinking has paid off well for McKay. Product lines added since 1950 represent half the company's business today. Many are far removed from the firm's basic line of roller levellers for steel mills and fabricating plants.

Jay Wardle started with McKay as a blueprint boy in 1921—about the time its founder, George G. McKay, retired and the company was incorporated. Eventually, Mr. Wardle transferred to engineering, then to sales. He was elected president in 1956.

JAY WARDLE, JR.: Special engineering will pay for itself.

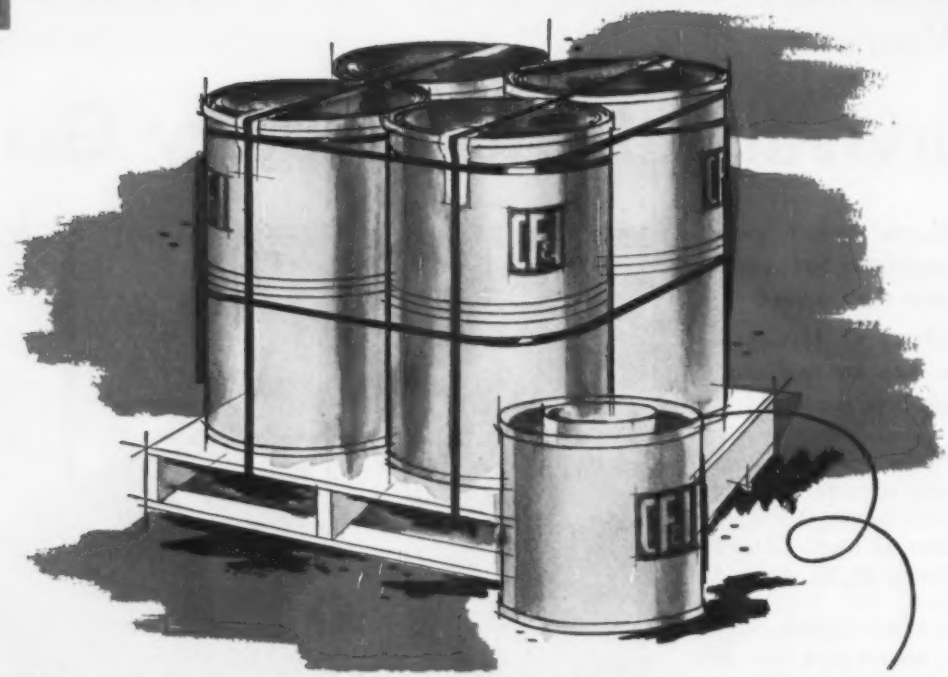
New Products Stressed — Capitalizing on the rapid post-World War II expansion in the auto and steel industries, McKay engineered press feed lines that could handle up to 1200 fpm of wide sheet steel. New cone-type coil holders capable of handling 30-ton coils were developed by the company. They've since become standard equipment in the automotive industry.

There were other innovations, including an automatic cold-drawn bar machine, and automated auto seat frame line, and resistance-welded pipe equipment.

Gets Worker Support—To develop this diversified line of products, Jay Wardle has built a nucleus of industry specialists who know their field inside out. Engineers-to-total employment ratio at McKay is a high one-out-of-10.

One of Mr. Wardle's major accomplishments is his labor relations policy. In tight times as these, he says, his men work hard on underbid jobs. McKay workers voluntarily passed up a pay boost recently to help keep the company competitive.

CF&I WIRE IN FIBRE DRUMS



reduces downtime...cuts scrap loss

CF&I Wire is now packed in fibre drums to keep it rust- and dust-free from the last pass on the drawing frame, through shipping and storage, until the sealed fibre drum is opened at your wireforming machines.

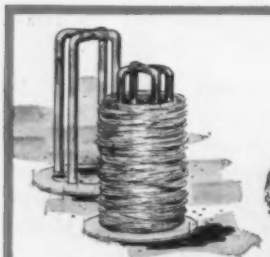
Less Handling—Longer Runs

CF&I Wire in fibre drums ends the cost and inconvenience of having to handle small coils manually. You get from 400 to 600 lbs. of wire in *one continuous length.* That means less downtime, less scrap loss. Note the following comparison.

500 lb. Fibre Drum	70 lb. Coil	Comparative Results
Wire Diameter .0468" 170′ per lb. Total Footage—85,000′	Wire Diameter .0468" 170′ per lb. Total Footage—11,900′	Fibre drum provides 7 times as much continuous production. Reduces necessity for stopping equipment for coil changes.

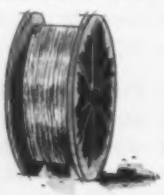
If your manufacturing process is not equipped to use fibre drums, order our economical 500-800 lb. capacity reels or non-returnable "spiders." Half fibre drums (holding from 250 to 400 lbs. of wire) and steel strapped or paper wrapped coils are also available. For high or low carbon steel wire; round, flat or shaped; in any size, temper, grade or finish, make CF&I your source of supply.

OTHER CF&I STANDARD PACKAGING METHODS

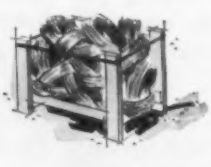


Returnable spiders (2000-4000 lbs. capacity)

Steel strapped coils (200-2000 lbs.)



Reels (500-800 lbs. capacity)



Steel strapped wooden rack

Non-returnable spiders (500-700 lbs. capacity)

CF&I WICKWIRE WIRE

THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Ft. Worth • Houston • Kansas City • Lincoln Oklahoma City • Phoenix • Pueblo • Salt Lake City • Wichita • PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • San Leandro • Seattle • Spokane WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia • CF&I OFFICES IN CANADA: Montreal • Toronto CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg 6076

Uncertainties Fade in Fall Upturn

Business still suffers from its recession wounds, but every step upward brings new confidence.

Surveys are unanimous in reflecting executive assurance that the upturn will gain momentum this fall.

▪ You can look forward to the upcoming fall season with increased optimism. You'll find plenty to do with vacation over.

There's every indication that the improving business trend that characterized July and August will continue. And this belief is strengthened by the fact that the summer lag did not materialize, as most predicted.

Overcame Summer Doldrums — In other words, the improvement, while not sensational, was strong enough to buck and overcome seasonal factors that ordinarily dictate a hot weather slump. This in itself is a strong reason for optimism.

Most of the surveys that cross your desk (from government agencies, private business letters, and business associations) all point to gradual improvement. Almost all reflect increased confidence.

Good for Metalworking — One thing that is most encouraging to metalworking: The most optimistic group, in terms of improving year-to-year sales, is in the durable goods and manufacturers goods group, where metalworking finds its greatest markets.

This is the type of business climate that you can grow and thrive in. But it also means hard work. Business is on the road back, but it is not a boom as yet.

Reason for Caution—There's a good reason for the caution many businesses reflect, in spite of the overall feeling of optimism.

For one thing, the very nature of the slow recovery discourages anything but tempered enthusiasm. Business is pulling itself up by its bootstraps, with hard selling, economies within the company, with tightened and more efficient management.

Many Hard Hit—This is not the atmosphere that encourages wild sprees or big gambles. And many businesses, including some of the comparative giants, have been hit hard financially. Many have sustained severe losses in one or more quarters this year and are not in the position to extend themselves without cause.

Then there's the auto industry, with its double question mark of a strike possibility and still uncertain sales of 1959 models.

Modest Pace — However, although a strike is a distinct possibility, one of long duration is not likely. It's doubtful if production will be shut off for long. Sales are not likely to set any records, or come close to any, but auto executives are predicting a 5.5 million model year, a figure they might well reach.

With these factors in mind, you can expect the recovery to keep up its modest comeback pace, with every step upward bringing a bit of confidence.

You Can Overdo Do-It-Yourself

In these days of mounting pressure to cut costs, there's a strong tendency to do more things within your own plant that you ordinarily would have done elsewhere.

In some cases it can be done—if you are on familiar ground. In other cases, it can be costly. There's a lot of difference between do-it-yourself in industry and do-it-yourself at home.

False Economy — This is particularly true in making equipment purchases. It may seem like an easy step in economy to buy your own parts or components, and do the engineering and assembly yourself. Don't bet on it.

Let's say you believe you can cut costs on your gages. You buy the instrumentation and supply the rest yourself. If it doesn't work, where do you go for remedy, and where do you place the blame? With the manufacturer or in your own toolroom?

Experience Costs—Actually, the blame probably would rest at your own office door. If you had gone to a manufacturer with years of experience and an established reputation, you might have paid more initial cost.

But you would also be buying his experience and engineering brains in a specialized field, something that can't be set up overnight in your own plant.

If you are contemplating more parts and components manufacturing in your own plant, make sure you look at all the angles, and the consequences. Some times part of the price that is attributed to engineering may seem high. But it can also be the least expensive factor.

AUTOMOTIVE

S-P Unwraps New Survival Plan

Economy Car and Diversification Are Keynotes

To stay alive, S-P is revamping its entire marketing concept. Packard and Scotsman lines will be discontinued.

The company is ending its agreement with Curtiss-Wright Corp.—By H. R. Neal.

▪ In a bid for survival in the automobile industry, 1959 looms as one of the most important years in the short history of Studebaker-Packard.

Harold E. Churchill, president, has announced a number of moves which S-P hopes will put the company back in the profit column.

Key steps to be taken by the South Bend auto company will include a new automobile product line, a diversification program which can take advantage of a substantial tax credit carryover stemming from losses, a refinancing plan, and termination of a management agreement with Curtiss-Wright Corp.

New Formula — After years of trying to make a go of it in the auto industry by competing against the automotive Big Three with a "full" product line—high and low priced cars, S-P will concentrate on low and lower priced product lines. It will drop its present economy model, the Scotsman, as well as its Packard line.

In this respect, the company is switching to the formula American Motors president George Romney has successfully, at least this year, employed to save his company.

Compact and Economical—Like AMC's Rambler, S-P's new car will be "compact" rather than small. Mr. Churchill said, "We have created a highly stylized new car tailored to a new concept of motoring. It is a smaller car rather than a small car since it has large-car seating capacity; it is an economical car rather than an economy car; it is the type of car in which the American public has shown an increasing interest. It will be ready this fall and not three years from now."

S-P's new lower priced, and smaller, car is scheduled for public introduction around Nov. 1. It will be available in two-door and four-door sedan, two-door hardtop and station wagon models, at prices ranging from around $1750 to $2200. The wheelbase will be 108.5 in. and length will be 175 in.

Both a six-cylinder and a V8 engine will be offered, as does Rambler. Only a minimum amount of bright metal trim will be found on the cars, and single lens headlights will be employed rather than dual arrangements now standard on most cars.

Refinancing Setup — The all-important refinancing program calls for 20 banks and three insurance companies to convert S-P's present $54.7 million debt into $16.5 million long-term notes and 175,000 shares of convertible preferred stock.

The company also will seek authorization for an increase of three million shares of common stock

Preview Peek at 1959 Cadillac

Lower and Glassier — Cadillac for 1959, like all other General Motors cars, will be "all new" from bumper-to-bumper and roof-nearly-to-the-road (wheel size is the same).

New Cadillacs will appear longer, but this will be largely illusionary as length will be close to present models. However, they will be lower and there will be more glass, both of which "stretch" the car's apparent length.

New But Familiar—But in spite of the all-new body, styling features made familiar in recent years will be retained so there will be no mistaking the man who drives down the street in one. And present Cadillac owners won't have to worry that the new models will outdate the one they bought this year.

Despite a completely new body and sheetmetal, the new models are unmistakeably Cadillac, says James M. Roche, the division's general manager. The company is adhering to its formula of evolutionary change.

A number of engineering changes and improvements also have been made for 1959.

One Model Added—Series and model names continue unchanged, but the number of models to be offered has been increased to 13 from 12 to give customers a choice of four or six side window styling in one series.

Mr. Roche predicts Cadillac will continue to dominate the high-price market and estimates his division will build between 150,000 and 153,000 cars during the 1959 model year.

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The countless parts and products made from Roebling high-carbon steel spring wire and flat spring steel have one thing in common . . . their superior quality. This, of course, is related to the inherent fineness of the materials.

The variety in which Roebling offers these spring materials is equally impressive. They are available in hard drawn, hard rolled, annealed or soft, tempered or untempered. Types include zigzag and no-sag wires; upholstery and mechanical spring wires; valve spring wire; clock- and motor-type spring steels and flat spring steels of all types and description.

Whatever the type, size or characteristics you require—Roebling can fit your needs exactly. You'll find that Roebling quality means maximum production from your machines and consistent uniformity in your product.

For spring wire and flat spring steel information, contact Wire and Cold Rolled Steel Products Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

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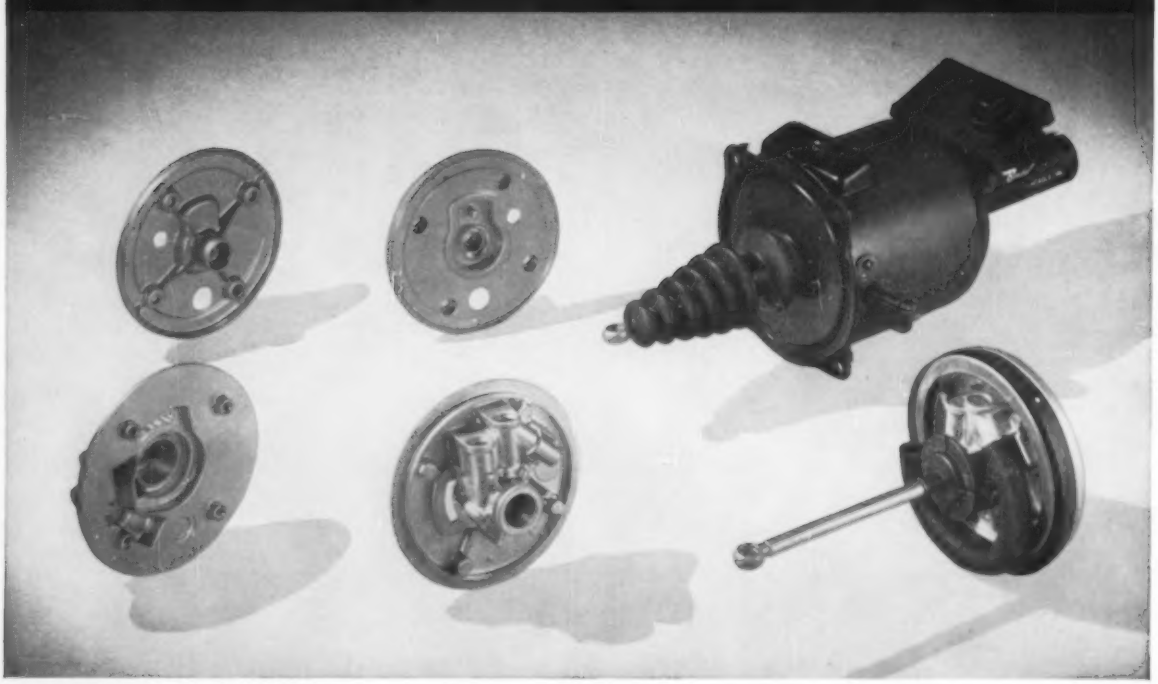
ZINC DIE CASTINGS ARE BEST



Bendix engineers designed this piston and control valve assembly for the Treadle-Vac Power Brake so the entire mechanism could be built around these two intricate ZINC Die Castings.

Extra parts—as well as extra machining—were eliminated by the use of ZINC Die Castings.

Front and back views of the two castings show the cored holes and bosses used in locating and fitting the internal parts. Both plates are quickly prepared for assembly by a single machining operation and locked together as a unit containing the poppet valves, springs, diaphragms and other necessary equipment.

Bendix engineers gained additional advantages by using ZINC Die Castings. Ribbing, for instance, permitted the use of metal-saving thin wall sections while providing more than ample strength for the job. They knew, from previous experience, that die life is longer with ZINC than with other die casting materials.

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Automotive Production

WEEK ENDING	CARS	TRUCKS
AUG. 23, 1958	25,925	8,676
AUG. 16, 1958	59,677	12,976
AUG. 23, 1957	123,130	20,491
AUG. 17, 1957	117,598	20,001
TO DATE 1958	2,726,820	553,249
TO DATE 1957	4,276,350	740,084

*Preliminary Source: Ward's Reports

and 250,000 shares of second preferred stock which would be available for acquisition of other businesses.

Home Town Support — Citizens in South Bend, S-P's home town, have lined up behind the company and formed a "Citizens for Studebaker" club. Membership requirement: ownership of at least one share of S-P stock.

Also betting on S-P success are labor officials. Stamley Ladd, president of the St. Joseph County Industrial Unions Council reports his council's officers and bargaining committeemen of Bendix Local 9 have each bought at least two shares of S-P stock. And they're encouraging other union members to do likewise.

Curtiss-Wright Pact Ends — To acquire "other businesses," S-P is contracting with A. M. Sonnabend, president of Hotel Corp. of America, to direct an acquisition and diversification program. Mr. Sonnabend would become a member of S-P's board of directors.

Mr. Churchill also confirmed the "mutual termination" of his firm's advisory management agreement with Curtiss-Wright Corp. This includes C-W's dropping of an unexercised $5 a share option on five million shares of S-P stock.

At the same time, C-W will pay $2 million for properties now under long-term lease from S-P, including plants in Utica, Mich., and South Bend. This is in addition to the $25 million previously received under the lease arrangement.

Mercedes-Benz to Stay—S-P will also establish a wholly-owned subsidiary for the further development of sales and service of Mercedes-Benz automobiles which it currently markets in the U. S. S-P will acquire the franchise from a U. S. subsidiary of Daimler-Benz and Curtiss-Wright.

Commenting on the ending of the Studebaker-Packard and Curtiss-Wright agreement, Mr. Churchill said: "Curtiss-Wright performed very real and important services under the advisory management contracts. They were in constant attendance and advised upon and assisted us in the maintenance of the enterprise through very difficult times, in the snugging-back of the operation to South Bend, and in all kinds of steps and procedures to reduce costs."

In short, Curtiss-Wright's money and advice are responsible for S-P's continued survival.

Some Aren't Sorry — Still there are indications that S-P is not saddened by cancellation of the firm's agreement with Curtiss - Wright. There has been criticism by a stockholders' group of the deal which will give C-W title to two of the most modern plants owned by the corporation for only $27 million.

There is an undercurrent of feeling in S-P management that the company will have a need for these plants in the future.

The financial agreements must still meet with stockholder approval. This likely will be sought at a stockholders' meeting which might be held in early October.

Mr. Churchill left no doubt that expansion, not further shrinking is the key to S-P's continued existence. The plan has worked elsewhere. Whether or not it will for the South Bend auto company is still an open question, and the answer won't be known for a couple of years. Meanwhile, S-P has a new lease on life.

Correction

It was incorrectly reported in the Automotive column (The IRON AGE, Aug. 7, 1958, p. 59) that U. S. Steel has been licensed by Armco Steel to produce aluminized steel. Armco says it has not granted a license to U. S. Steel.

THE BULL OF THE WOODS

SAY, WILL ONE OF YOU PLEASE STOP AT MY HOUSE AN' TELL MY WIFE TO COME AFTER ME WITH TH' CAR? IT'S ONLY TWO BLOCKS OUTA YOUR WAY!
OH, YES--LUKE, WILL YOU PUT MY NEWSPAPER ON TH' PORCH? TH' PAPER KID GENERALLY LEAVES IT ON TH' LAWN!
I JUST KNOW I LEFT SOME WINDERS OPEN, AND MY WIFE'S AWAY--OH, LUKE--NO--GEORGE, YOU LIVE CLOSER--
THE COMMITTEE
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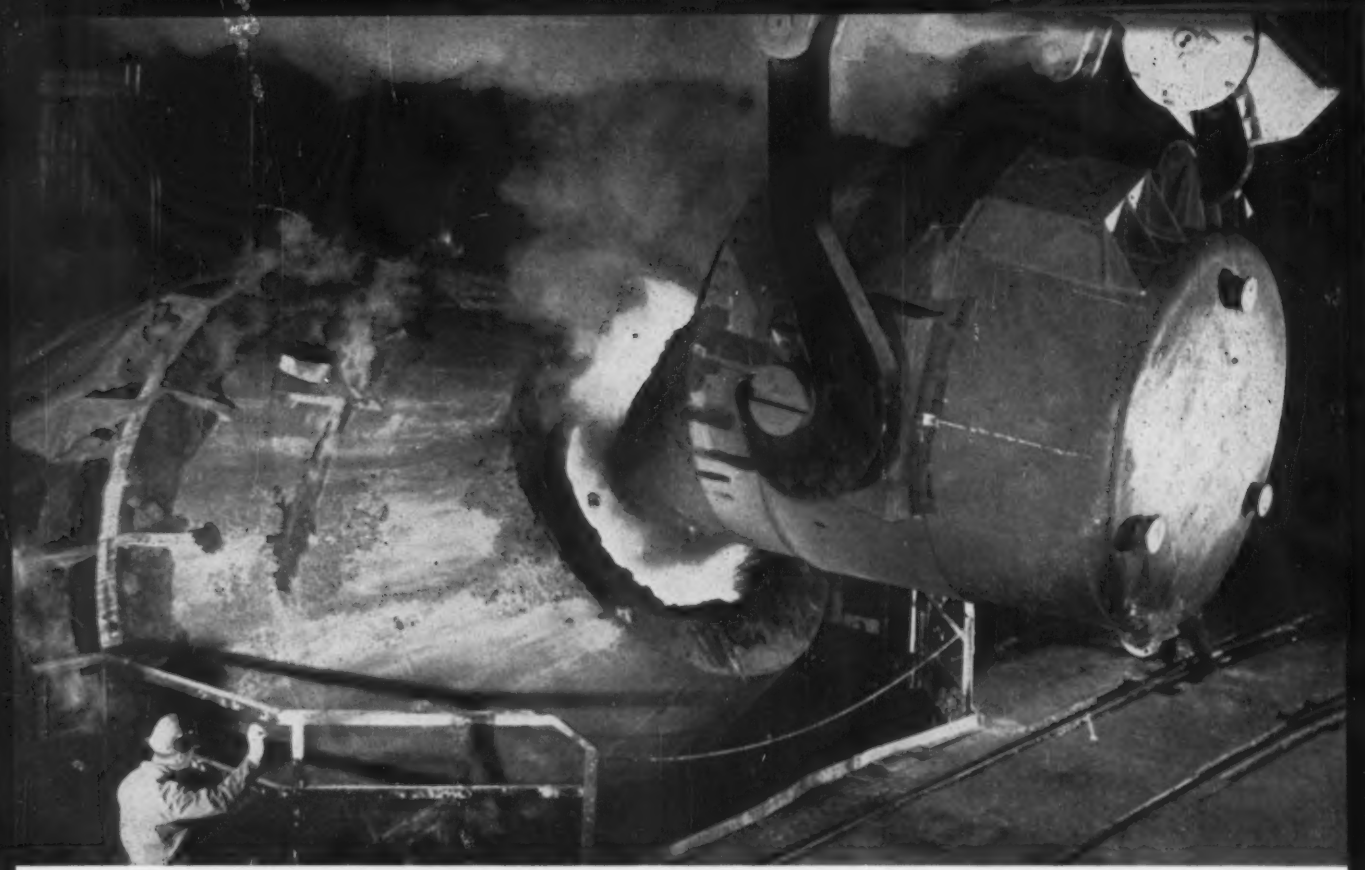
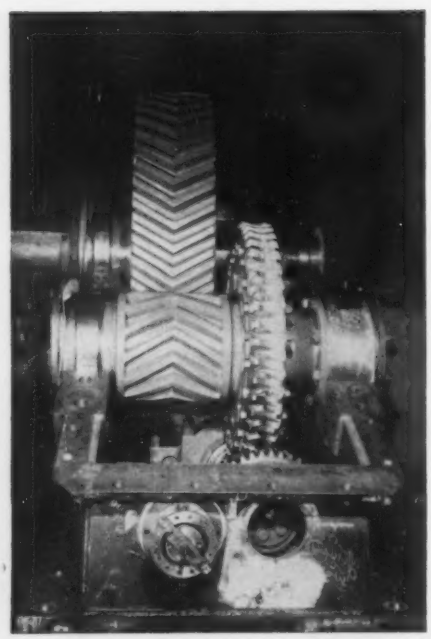


Largest basic oxygen furnace in the world produces steel by receiving a jet of pure oxygen. Gears (below) are Texaco-lubricated.

Texaco lubricates the gears that tilt America's largest basic oxygen furnace



When a gear train has to tilt a furnace that weighs 340 tons including 90 tons of molten iron and scrap in a 180-degree arc every half hour, you've got a tough lubrication problem—and Jones & Laughlin solved it with *Texaco Meropa Lubricant*.

The basic oxygen furnace at J&L's Aliquippa (Pa.) Works is the largest in the U.S. Its reduction gears are lubricated with *Meropa* because this heavy-duty lubricant resists shock and heavy loading, and stands up under high temperature. J&L's experience with *Meropa* in other applications had previously proved its high resistance to corrosion, oxidation, foaming and sludging—in addition to stable viscosity for easy pumping and dependable extreme pressure characteristics.

There is a full line of *Texaco Meropa Lubricants* designed specifically to meet all requirements of steel mill gear drives. A Texaco Lubrication Engineer will gladly suggest the right one for your application. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

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Can Ike Curb Deficit Spending?

He's the Underdog in Battle of the Budget

A $12 billion Federal deficit is almost a certainty in the current fiscal year.

The Administration would like to reduce it by election time, 1960.—By G. H. Baker.

▪ Money experts in the Eisenhower Administration believe government spending is going to exceed revenues in the year starting next July 1.

They are reconciled to the almost certain sight of a $12 billion deficit in the federal budget in the current year. Treasury receipts through June, 1959, are estimated at $67 billion. And spending, the Administration admits, is going to total about $79 billion.

Better in 1960?—The Administration is hopeful of achieving a much smaller deficit in fiscal 1960, the year starting in mid-1959. A far-unbalanced budget reported to the public at about the time of the presidential nominations would be a boon to the opposition.

Some Administration leaders feel that a national economic upswing is going to help close the gap between revenues and outlays. The recovery now evident will be a continuing one, they say. Two factors are depended on to insure a more favorable income-spending situation:

Tax Income, Less Aid—One is a continuation of present rates on individual and corporate taxes and excise levies. The other is a foregoing of federal aid to the economy, in view of more robust production and employment.

Budget standards are to be tight from now on, barring any new and violent cold war upheaval. The pursestring watchers will fight hard against further expansion in federal commitments to spend. They will renew their search for means to cut down the costs of running the government.

Money-Saving Steps — The Administration will strongly urge Congress to have state and local authorities foot the bill for many functions now involving federal funds. Suggested as programs that might well be handled on a state or local basis are water pollution control, disaster relief, and vocational education.

For the businessman, the projected clampdown on spending may mean the payment of new or higher fees for certain government services.

Small Company Bids

Congress this year passed a measure which allows the General Services Administration and other government agencies to set aside proposed procurement of a host of commodities up to $2500 for specific small business bidding. The present limit is $500, in most cases.

Other Provisions—The law permits the agencies to make advance, partial, progress or other payments to the supplier; to insert in bid notices a provision excluding larger firms, and to increase their use of negotiated procurement when dealing with small firms.

The measure is one of the series of small business bills passed by the Congress this year. It is designed to meet the objections of many firms that government contracting officers are unable to direct a fair share of business their way.

Will Tax Cut Boost U.S. Revenues?

▪ A new income tax rate reform bill that will be offered to Congress next year by Rep. Sadlak, R., Conn., and Rep. Herlong, D., Fla., may be the answer to the growing Federal deficit.

The new proposal would provide five annual deductions in top corporate and individual tax rates. Top rates would be brought down to 42 pct. Intermediate rates also would be reduced.

A Business Stimulant—With the tax burden eased, business would be given greater incentive to undertake new ventures, sponsors of the bill say. They see excellent chances of an economic growth rate of more than 5 pct a year. Without tax reform, growth in gross national product will not average more than 2 pct a year, the sponsors claim.

Backers of the Sadlak-Herlong Bill will have at least one convincing factor in their favor. Expansion of industry and trade, seen as a major result of lighter taxes, should eventually produce a greater tax return to the Government.

Campaign Begins — As new means are sought to bring in more tax revenues, the new bill may pick up some needed support within the Eisenhower Administration. The campaign to line up Congressional support of the measure is already in progress. It appears certain to be one of the key subjects for Congress to consider in 1959.

Albany 1, N. Y.
Eastern Metals Warehouse, Inc.
ALbany 89-3281

Birmingham 5, Ala.
Allegheny Ludlum Steel Corp.
FAirfax 2-0548

Buffalo 7, N. Y.
Brace-Mueller-Huntley, Inc.
Victoria 8700

Cambridge 38, Mass.
Achorn Steel Company
HAncock 6-9592

Charlotte 1, N. C.
Edgcomb Steel Company
FRanklin 5-3361

Chicago 32, Ill.
Allegheny Ludlum Steel Corp.
LAfayette 3-8650

Chicago 32, Ill.
U. S. Steel Supply Div.
BRunswick 8-2000

Cincinnati 1, Ohio
Allied Abrasives & Tools, Inc.
MUlberry 1-2222

Cleveland 3, Ohio
Allegheny Ludlum Steel Corp.
UTah 1-0500

Dallas 22, Texas
Peery Steel Company
FEderal 1-4354

Dayton 4, Ohio
Allegheny Ludlum Steel Corp.
HEmlock 8386

Denver 16, Colorado
Union Supply Co.
AMherst 6-2292

Detroit 20, Mich.
Allegheny Ludlum Steel Corp.
JOrdan 4-6900

Flint 1, Mich.
Hall Steel Co.
CEdar 4-6672

Grand Rapids 8, Mich.
Good Steel Service, Inc.
CHerry 1-4425

New York 17, N. Y.
Allegheny Ludlum Steel Corp.
MUrrayhill 2-0369

Philadelphia 34, Pa.
Edgcomb Steel Co.
GArfield 3-6300

Rochester 1, N. Y.
Brace-Mueller-Huntley, Inc.
COngress 6-6560

San Francisco 7, Calif.
Allegheny Ludlum Steel Corp.
GArfield 1-1804

Shelton, Conn.
Trico Manufacturing Co.
EDison 7-6214

St. Louis 8, Mo.
Allegheny Ludlum Steel Corp.
JEfferson 3-6700

Springfield 1, Mass.
Allegheny Ludlum Steel Corp.
REpublic 4-4996

Syracuse 1, N. Y.
Brace-Mueller-Huntley, Inc.
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Business Gains Expected in West

Many Predict Third Quarter as Good as 1957

Optimism still rules the roost in the Farwest.

Business leaders believe sales gains will help third quarter reach '57 levels.

Mountain area more confident than Coast.—By R. R. Kay.

▪ Third quarter gains are expected by many West Coast industrialists. Almost three-fourths of those surveyed for the Prudential Insurance Co.'s Western Business Forecast say their companies will equal or better second quarter results.

Optimism is the general rule on the panel which includes the top people in construction, manufacturing, transportation, public utilities, finance, agriculture, mining, and trade.

Widespread Optimism — About 69 pct of those polled believe their third quarter business will show up as well as in the same period of 1957. Some predict it will be even better.

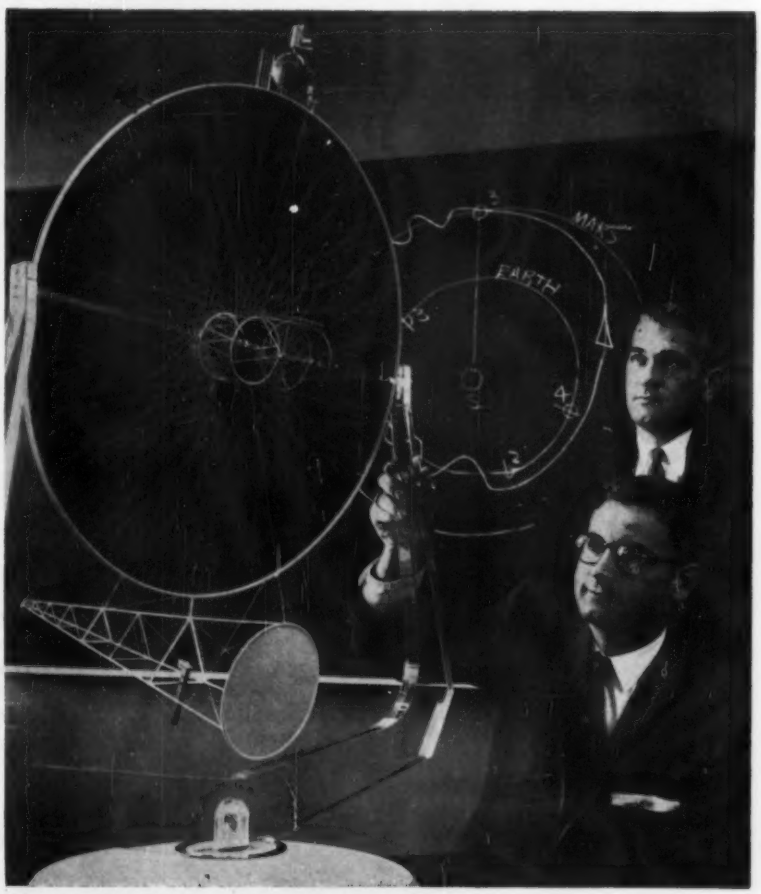
There's no geographic binder on the hopeful outlook. "Equal or better" business replies ranged from 66 pct in the Colorado-Wyoming-New Mexico area to 70 pct in the Washington-Oregon area.

Gains in this quarter over the April-June period of from 1 pct to 10 pct are counted on by 37 pct of those questioned. However, another 20 pct say the third quarter will far surpass the second.

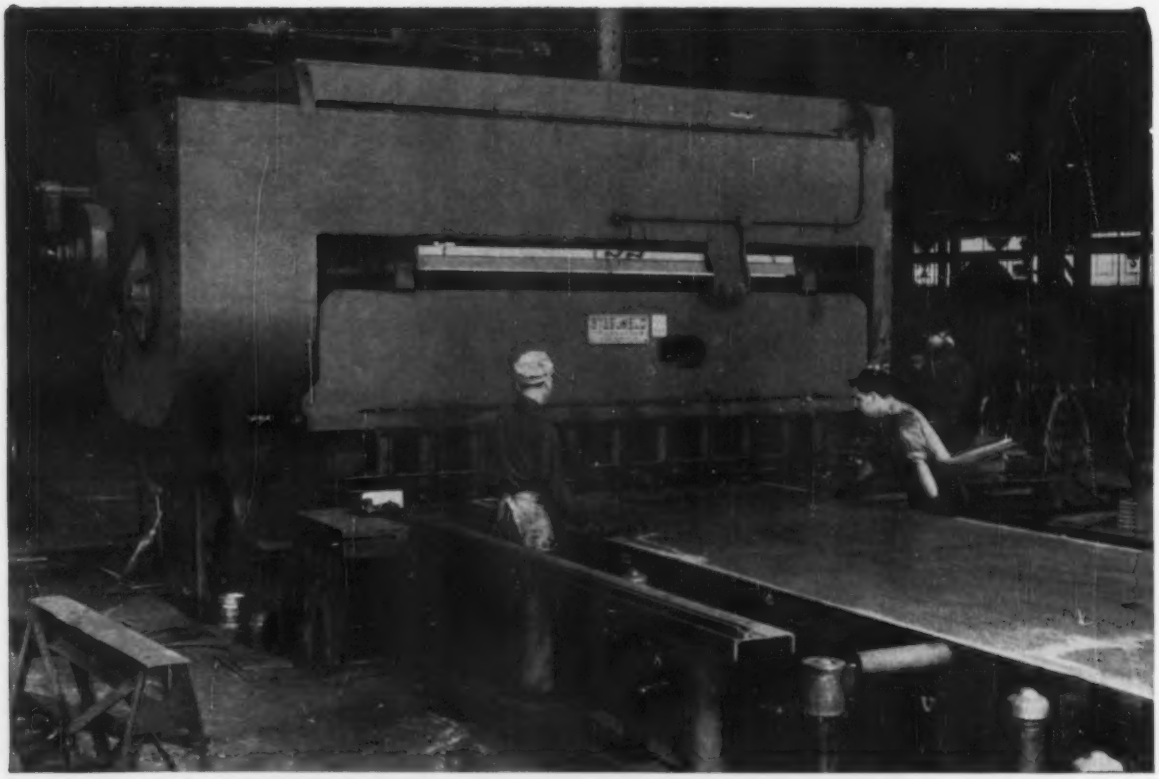
Brighter in the Hills — High mountains seem to induce a bright outlook. In the Rocky Mountain States more business leaders than in 1957 say that third quarter business for them will prove out as good as or even better than last year's third. But the southern California-Arizona-Nevada region is not quite so optimistic.

Who's Right?—The businessman and the man on the street differ on the outlook. The Prudential Forecast shows that business leaders say that things are looking up. Yet a recent Gallup Poll reports, "The Farwest is the one region of the country where pessimism about the recession outweighs optimism."

Making Plans for a Look at the Red Planet



CLOSE-UP INTERVIEWER: Boeing scientists check scale model of vehicle they designed for close-up study of the planet Mars. Full-scale vehicle would be launched from a space satellite. It would orbit Mars in three years, sending back to Earth pictures optically transmitted after being observed by television camera focused on a telescope.



Steel plates up to 10' x 1" are quickly cut on this Steelweld. A complete line of machines is available for every thickness from light gauge to 1½" and every length from 6'-0" to 24'-0".

Pivoted-Blade Shears Outstanding for Heavy Plates

WHILE Steelweld Shears are used in hundreds of plants for cutting every gauge of metal, it is on heavy plate where the easy accurate cutting action of the machine is really eye catching. With nothing more than a quick "oomph" the knife goes through the metal quickly and cleanly, seemingly without effort. The resulting cut edges are straight and sharp.

Steelweld Shears are now cutting steel up to 1½ inches thick. A wonderful feature is the ease and speed with which the heavy plate machines can be adjusted to cut the lightest gauge metal. In a matter of seconds the clearance between the knives can be reduced to that known to provide the best result for the thickness of the plate being cut. This is done simply by turning a crank until a gauge indicator is on the correct thickness figure. This feature is known as MICRO-SET knife adjustment and is the talk of the industry.

Production is fast on Steelwelds because they are heavily built to enable high operating speeds. Also, they are equipped with electric foot control. This reduces operator fatigue and often eliminates many steps he must take to the machine.

If you want the most modern machine, with outstanding features that make for the finest in all around performance — tried and proven features, some of which are not obtainable in any other shear — we invite you to get the facts on Steelwelds.

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STEELWELD PIVOTED BLADE SHEARS

U.S. Averts Surplus Tool Flood

Schools, Reserve Pool Absorb Bulk of Surplus

Tools tagged for schools and NIER reserve may reach 10,000 units this year.

While the school program is a headache to officials, they like what it's accomplishing.

The depressed machine tool industry is breathing a sigh of relief.—By E. J. Egan, Jr.

▪ Government experts have a watchful eye on disposals of surplus machine tools this year. They don't want to flood an already depressed market for the sale of new equipment. And they're confident they can absorb a big chunk of the surplus into (1) the "Tools for Schools" program, and (2) the National Industrial Equipment Reserve (NIER).

Recent figures tend to back up this belief.

Total allocations of surplus machines to schools and colleges came to 2745 units in the first half of this calendar year. This compares with 1200 units sent to schools during all of 1956 and only 1750 in 1957. Last month alone, 244 machines were tagged for delivery on the expanded school aid program. This month the total will run between 400 and 800.

Budget Problem — Tool experts still estimate that some 12,000 to 15,000 machine tools will be declared surplus to Government needs this year. Virtually all of them are in the general-purpose category. The NIER program to store such tools for emergency use will take 5000—if Congress restores a 50 pct cut in the project's original $4 million budget.

Even if the budget cut isn't put back, the NIER will still absorb more than 2500 tools, officials say.

School Plan Popular — But it's the "Tools for Schools" program that's making a big hit with educators and machine tool builders alike. Officials of the U. S. Dept. of Health, Education and Welfare, which handles the project, say they like it, too. They also admit it's a bit of a headache to administer.

Requests from schools already total 108,000 machine tool units. To meet the demand, only 5000 tools ("maybe 6000, with a little luck") will be shipped to schools this fiscal year. Shipments can't be speeded up a whole lot; it costs several hundred dollars to ship each tool to a school and this money must usually be budgeted in advance.

They Want These Noses to Be Shiny

CRITICAL MACHINING: Ramjet engine nose cones for Bomarc missiles are turned on a Monarch lathe at Marquardt Aircraft Co., Ogden, Utah.

INDUSTRIAL BRIEFS

New Brick Outlet — Blaw-Knox Co., Pittsburgh, plans to add the sale of refractory brick to its business. Special bricks of this sort are used to line steelmaking and other industrial furnaces. The company will begin marketing refractory products under its own name on Sept. 1, thus expanding its services for the steel and metallurgical fields.

West Coast Refractories — Mexico Refractories Co., St. Louis, will build a $2 million refractories plant on a site of about 10 acres a few miles from Stockton, Calif.

Rock and the Web—Macomber Inc. has acquired the plant and assets of Rock Island Bridge & Iron Works, Rock Island, Ill. Purchase price was in excess of $1 million. Macomber is a fabricator of open-web structural steel products.

Press and Stretch—International Aluminum Corp. has purchased from Sutton Engr. Co. a 1250/1500 ton extrusion press and a 15 ton hydraulic stretcher. The Sutton equipment has been installed at International's Miami, Fla. plant for processing extruded aluminum shapes.

Georgia on Its Mind—An industrial property on a 5-acre plot in Carrollton, Ga., near Atlanta, has been acquired by E. F. Houghton & Co., Philadelphia. Building will be modernized and enlarged for use as a manufacturing and warehousing facility. Equipment will be installed for blending, compounding, and treating industrial oils and chemicals for paper, textile and metal processing.

Rare Metals Alliance — The American Platinum & Silver Div. (formerly the American Platinum Works) has merged its Platinum Laboratory Ware Dept. with that of the Baker Platinum Div. (formerly Baker & Co., Inc.), Engelhard Industries, Inc. All platinum metal products will be manufactured in one plant located at Newark, N. J.

Nuclear Flattop Order—The Enterprise, America's first atomic-powered aircraft carrier, will use 16,000 lbs of aluminum bus bar. The 6101-T61 aluminum bus specified will be supplied by Reynolds Metals Co. It will be fabricated into switchgear and silver-plated at Newport News for installation on the atomic carrier.

Frozen Coal Problem—Five gas-fired Counteflo warm air space heaters will be installed by Dravo Corp., Pittsburgh, in a 460-foot long car shed at the new sintering plant of U. S. Steel Corp. at Saxonburg, Pa. The units thaw coal to facilitate unloading from rail cars.

Blast Furnace Record — The Warren, O., blast furnace of Republic Steel Corp. set a new corporation production record for a single furnace in July when it produced 65,755 tons of pig iron. Previous record of 62,092 tons has also been set by the Warren furnace in March of this year.

Charge It, Please — Borrowing from department store charge account technique as a means for more efficient handling of visitor requests for information from exhibitors, the American Society Tool Engineers will supply visitors to its Western Tool Show with metal plates on which the visitor's name, address, title, and company are embossed. The Show will he held in Los Angeles, Sept. 29-Oct. 3 at Shrine Exposition Hall.

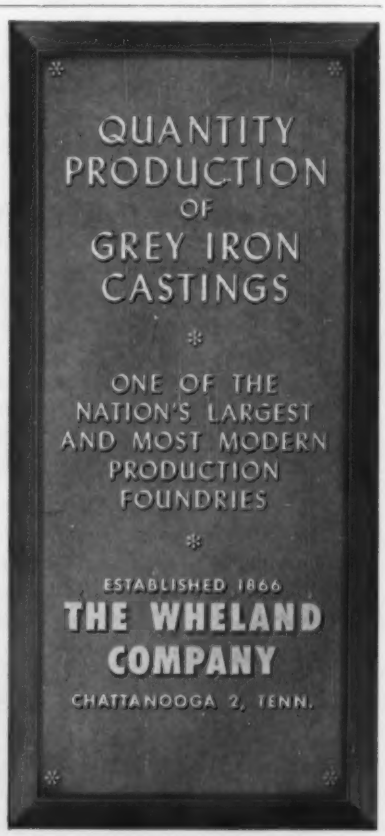
Promoting Strip—Peterson Steels, Inc., Union, N. J., has formed a Strip Steel Div., with headquarters at Melrose Park, Ill. The new division will promote the sale of razor blade steels, tempered spring steels, and other high carbon steels.

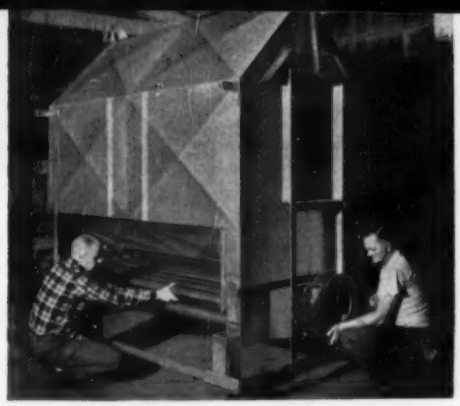
Profit Pipeline—The Power Piping & Sprinkler Div., Blaw-Knox Co., Pittsburgh, has a contract from Patterson-Emerson & Comstock, Inc., prime contractor, to furnish and erect the piping for three new rolling mills at the Duquesne, Pa. works of U. S. Steel Corp.

$2 Million Expansion—An expansion program involving $2 million has just been initiated by Cleaver - Brooks Co., Milwaukee manufacturer of packaged boilers for industrial, institutional, and commercial applications. Included in the program are a 70,000 sq ft addition to the firm's Lebanon, Pa., eastern manufacturing center and a new 25,000 sq ft production facility at Stratford, Ont.

Canmakers Selection—The Can Manufacturers Institute elected W. R. Franklin, vice president, J. L. Clark Mfg. Co., Rockford, Ill., as chairman of the Institute's industrial relations committee.

Joist Tables Set—The Steel Joist Institute now offers new load tables for SJI-approved open-web steel joists based on a working stress of 20,000 lb per sq in. By the use of 20,000 psi unit stress design, open web steel joists approved by the Institute are now in balance with all other steel used in structures.

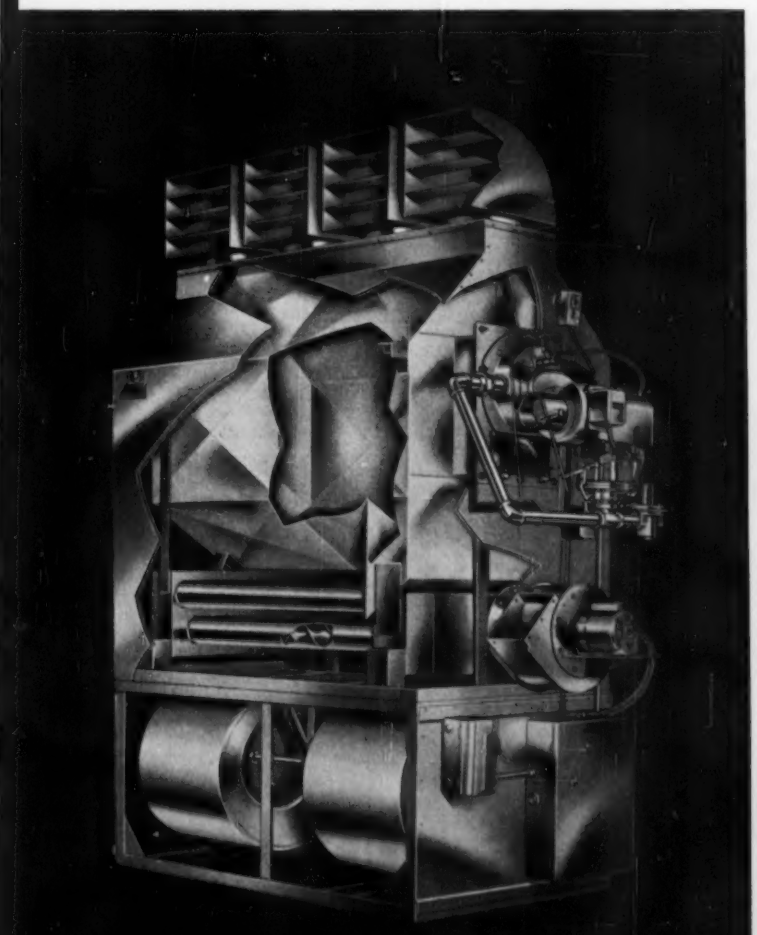




Workmen at Lennox Industries are fabricating a modern advance-designed Lennox Industrial Heater from Youngstown Steel.

Accent on Excellence

Youngstown cold-rolled sheets



LENNOX Industrial Heaters

Because long, cold winters can easily take their toll of inferior industrial heaters, quality manufacturers such as Lennox Industries Inc., of Marshalltown, Iowa, build extra service and durability into every heater they produce.

To provide for a long, trouble-free service life, Lennox Auto-Therm Industrial heaters are fabricated from Youngstown Cold-Rolled Sheets. These heaters, producing from 400,000 to 2 million Btuh, require steels that can withstand the temperature variations and long service required in industry—so they specify Youngstown.

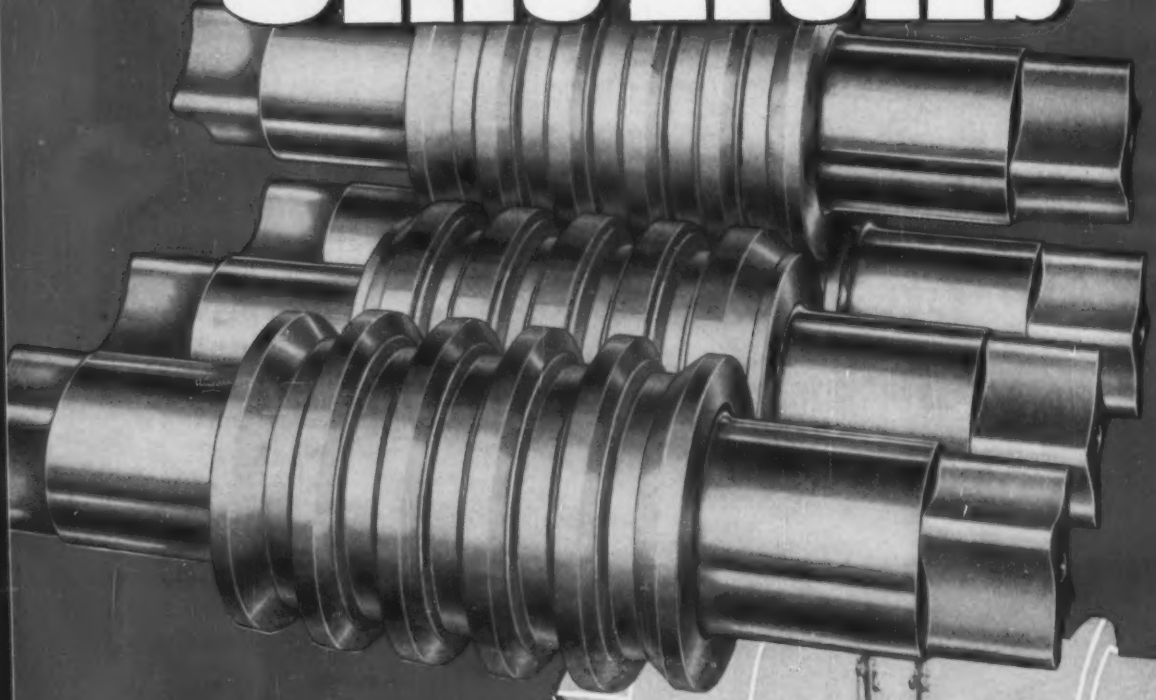
Wherever steel becomes a part of things *you* make, the high standards of Youngstown *quality*, the personal touch in Youngstown *service* will help you create products with an "accent on excellence".

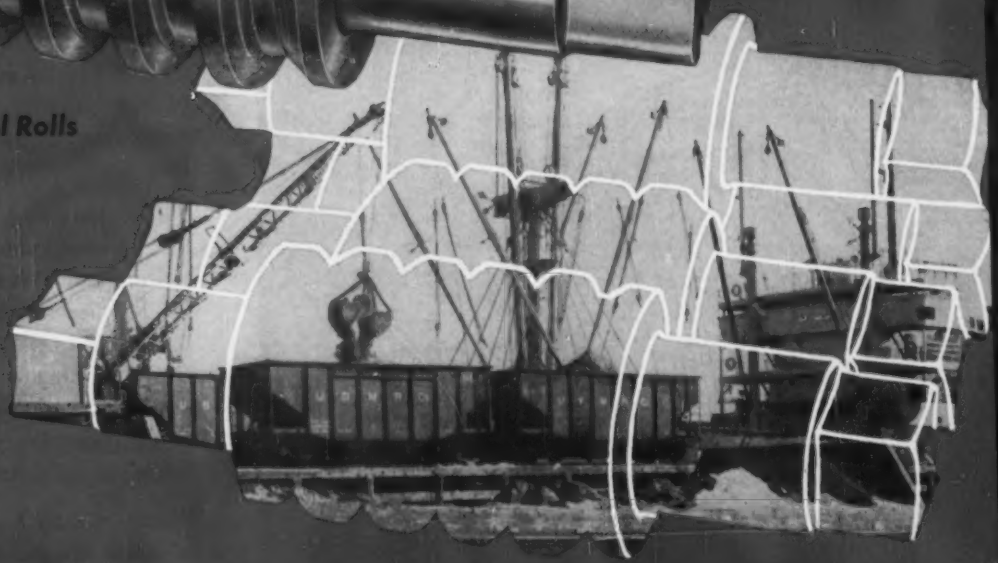
QUALITY YOUNGSTOWN SERVICE

THE **YOUNGSTOWN** SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steel
Youngstown, Ohio

Ohio Rolls





Ohio Iron and Steel Rolls

Carbon Steel Rolls
Ohioloy Rolls
Ohioloy "K" Rolls
Flintuff Rolls
Double-Pour Rolls
Chilled Iron Rolls
Denso Iron Rolls
Nickel Grain Rolls
Special Iron Rolls
Nioloy Rolls
Forged Steel Rolls

shaping metal for all Industry

THE OHIO STEEL FOUNDRY CO.

LIMA, OHIO

Plants at Lima and Springfield, Ohio

LIMA... *Virtually at the center of the steel industry*

Nicholas Polkabla, will become director, industrial relations, Pittsburgh Steel Co.

J. J. Barrett, promoted to superintendent, hot mills, Carpenter Steel of New England, Inc., Bridgeport, Conn.

E. C. DeVault, appointed Toledo district sales engineer, Press Div., E. W. Bliss Co., Canton, O.

L. N. Marchal, appointed asst. comptroller, U. S. Steel Supply Div., U. S. Steel Corp.

G. R. Ihnatko, promoted to director of personnel, Levinson Steel Co.

Dr. C. F. Robinson, appointed chief research physicist and **Dr. L. G. Cole,** as chief research chemist, Consolidated Electrodynamics Corp., Pasadena, Calif.

H. D. Kenney, appointed comptroller, The Babcock & Wilcox Co.'s Boiler Div., Barberton, O.

J. E. Irving, elected president, Irving Subway Grating Co., Inc., Long Island City, N. Y.

J. M. Price, appointed asst. sales manager, Metalworking Chemicals Div., Amchem Products, Inc., Ambler, Pa.

Michael Kraft, promoted to director, Training Dept., Indiana Harbor Works, Inland Steel Co., E. Chicago, Ind., steel plant.

A. L. Bupp, appointed manager of planning, Bucyrus-Erie Co., S. Milwaukee, Wis.; **G. F. Gilligan,** appointed works manager, Erie, Pa., plants.

K. F. Maxcy, Jr., appointed manager, product development and market research, Pittsburgh Steel Co.

H. B. Cramer, named manager, aluminum distributor sales for Olin Aluminum, Metals Div., Olin Mathieson Chemical Corp.

G. A. Hagerty, promoted to manager, marketing section, General Electric Co.'s Computer Dept., Phoenix, Ariz.

J. E. Grant, appointed manager, material control, U. S. Steel Supply Div., U. S. Steel Corp., Chicago.

Carl Rhodes, named general manager, Adrian Div., Hoover Ball & Bearing Co., Ann Arbor, Mich.

W. H. Deutemeier, will become treasurer, Armco International Corp., Middletown, O.

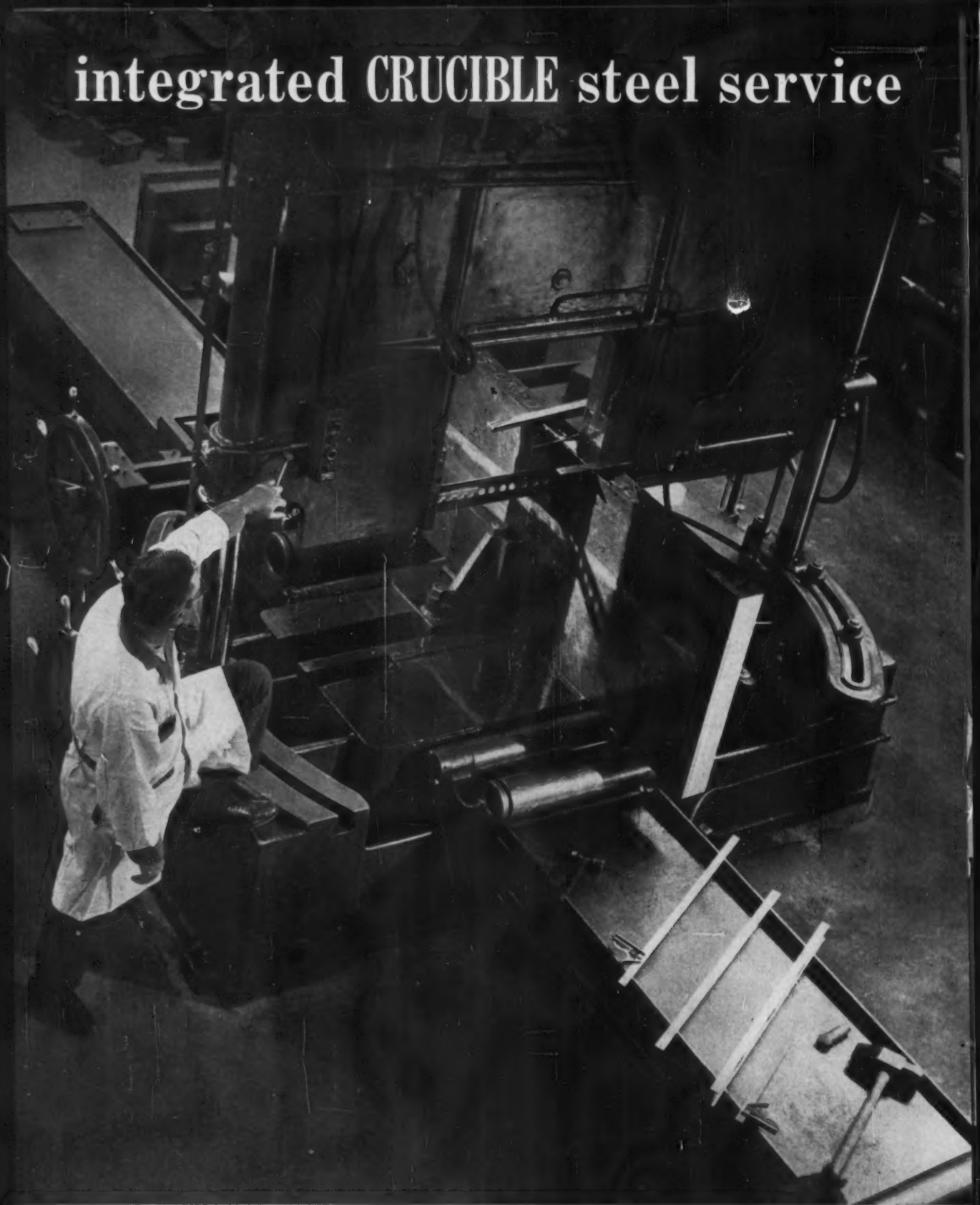
W. P. Lotz, appointed vice president, sales, Landis Tool Co., Waynesboro, Pa.; **J. A. Cover,** promoted to sales manager; **J. J. Keane,** promoted to assistant sales manager.

L. W. Buechler, appointed general sales manager, and **J. L. Behr,** chief engineer, Electric Products Div., Vickers Inc.

A. A. Schittina, appointed asst. sales manager, Wallace Barnes Steel Div., Associated Spring Corp., Bristol, Conn.

C. D. Dorworth, promoted assistant to the president, Alan Wood Steel Co., Conshohocken, Pa.

integrated CRUCIBLE steel service



The customer needed plastic mold steel cut to his specs as fast as he could get it. The Crucible warehouse confirmed his order, gave him immediate delivery because it had both the steel and the saw (big 24" x 42" hacksaws which can slice a 40" block in 4-4½ hours).

maintains a variety of local facilities for handling customers' special requirements

"We *regularly* rely on the Crucible warehouse's equipment. Why, it would take us all day to cut steels they can cut in minutes. We've tried to do these cutting jobs ourselves and, frankly, we lose money nearly every time."

This purchasing agent's words are probably typical because countless companies, all over the country, rely on the 27 local Crucible warehouses for handling their special needs. Unusual cutting of specialty steel grades and sizes is just an example. Or, if a warehouse can't handle extras, such as forging, grinding, machining, boring, polishing, etc. itself, it arranges to have them done conveniently and economically outside.

It's entirely possible that your plant has these facilities. Even so, it can pay you to find out what the local Crucible warehouse has to offer. As one materials buyer put it:

"We have a 'get to know the suppliers' policy. I've visited the Crucible warehouse personally and made a list of its equipment. Here it is – under 'Suppliers' Facilities.' Two weeks ago, when all our saws were tied up, we had the Crucible warehouse cut the steels. They did it immediately, so my list paid off."

All Crucible warehouses maintain stocks, services and facilities to serve you. If you'd like to know more about them, phone or visit the warehouse nearest you – *any time*. Its facilities and services are part of Crucible's integrated operation, from ore to mill and warehouse delivery to you. *Crucible Steel Company of America, Dept. PH06, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

MONTHLY STOCK LIST

Keep up-to-date on the specialty steels available—when they're available! Ask your local Crucible warehouse to send you its monthly stock list.

Customers' Master Files quickly give Inside Account Salesmen details on your receiving schedules and special requirements.

Inside Account Salesmen keep reference sources handy — give you fast breakdowns of analyses, or heat-treating, machining data.

Fleet of trucks and special delivery vehicles maintained at each warehouse ensure prompt, nearby deliveries.

TOOL STEELS – Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollows, forgings and flat ground stocks

HIGH SPEED STEELS – Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS – Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS – Crucible Max-el® rounds, hexagons, plates and brake die steel

ALLOY STEELS – Bars, billets, strip and sheet

COLD ROLLED CARBON SPRING STEELS

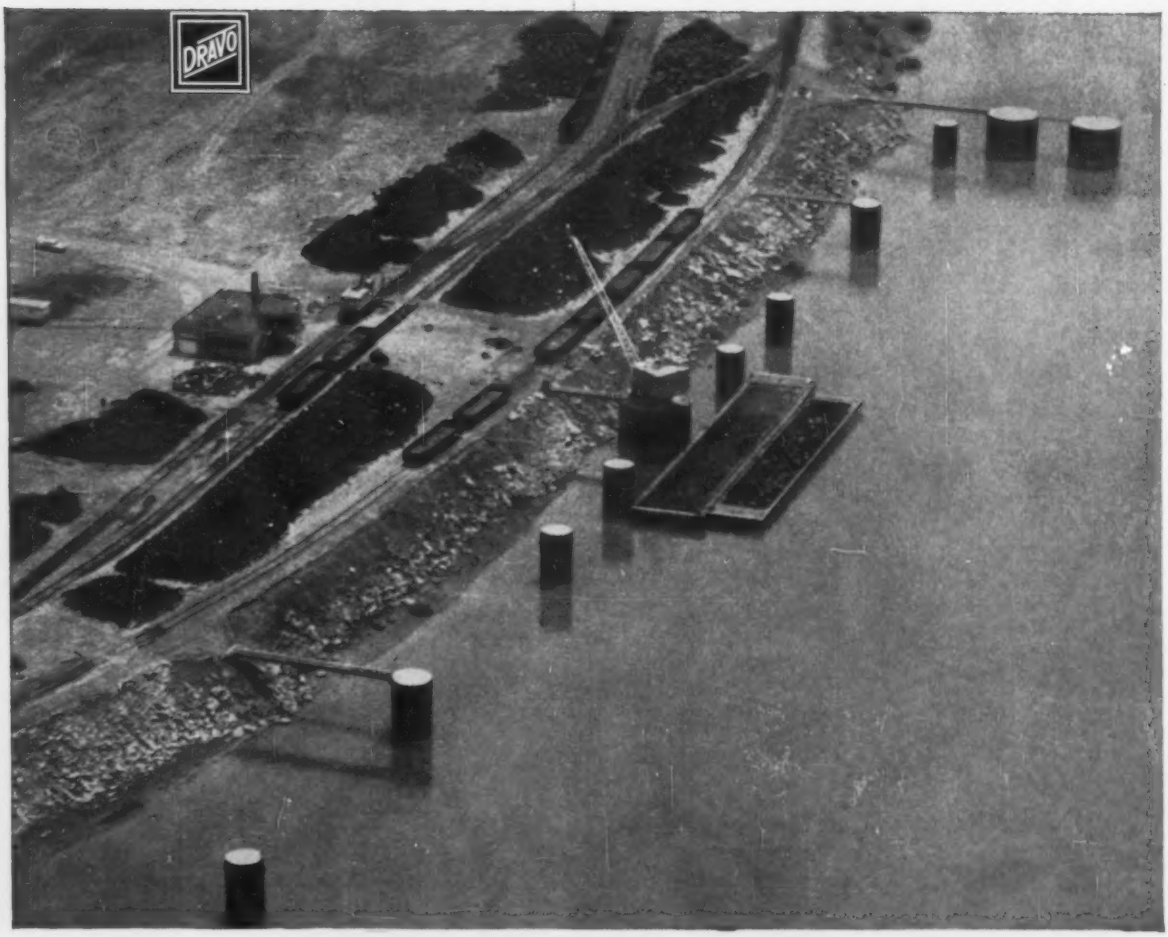
DRILL STEELS – Wing or section twisted auger drill steels, hollow and solid drill steels

ALUMINUM EXTRUSION DIE STEELS
HOLLOW TOOL STEEL
WELDING AND HARD FACING ROD
PLASTIC MOLD STEELS
PERMANENT MAGNETS
— and many others

Full stocks of specialty steels enable warehousemen to ready your order for shipment overnight — or earlier.

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton Denver • Detroit • Grand Rapids • Harrison • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • New Haven • New York • Philadelphia Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse Tampa • Toledo • Toronto, Ont.



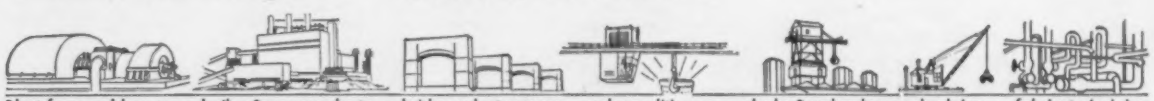
New river-rail terminal speeds scrap to Pittsburgh mills

Twenty-six miles above Pittsburgh, this new Monongahela River Terminals Corporation facility gives district steel mills and shippers important flexibility. Scrap steel, raw materials and finished goods arrive at the terminal via barge or rail—are stored—or trans-shipped out by barge or rail.

Built by Dravo, the terminal's 1065-foot, eleven-cell dock utilizes economical steel sheet pile construction. In addition, 40,000 cubic yards of mud and silt were dredged from the river bottom to create a suitable harbor.

Dravo's wide experience on construction jobs "in or around water" can help you realize genuine economies on such projects. For information on this or the other products and services pictured below, write DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

DRAVO
CORPORATION



Blast furnace blowers • boiler & power plants • bridge sub-structures • cab conditioners • docks & unloaders • dredging • fabricated piping

foundations • gantry & floating cranes • gas & oil pumping stations • locks and dams • ore & coal bridges • process equipment • pumphouses & intakes

river sand and gravel • sintering plants • slopes, shafts, tunnels • space heaters • steel grating • towboats, barges, river transportation

Mix Business Sense With Machine Replacement Formulas

Equipment replacement formulas are fine as far as they go. But they don't always yield clear-cut answers.

Sometimes you have to rely on experience and an intuitive "feel" of the situation to guide your decisions.

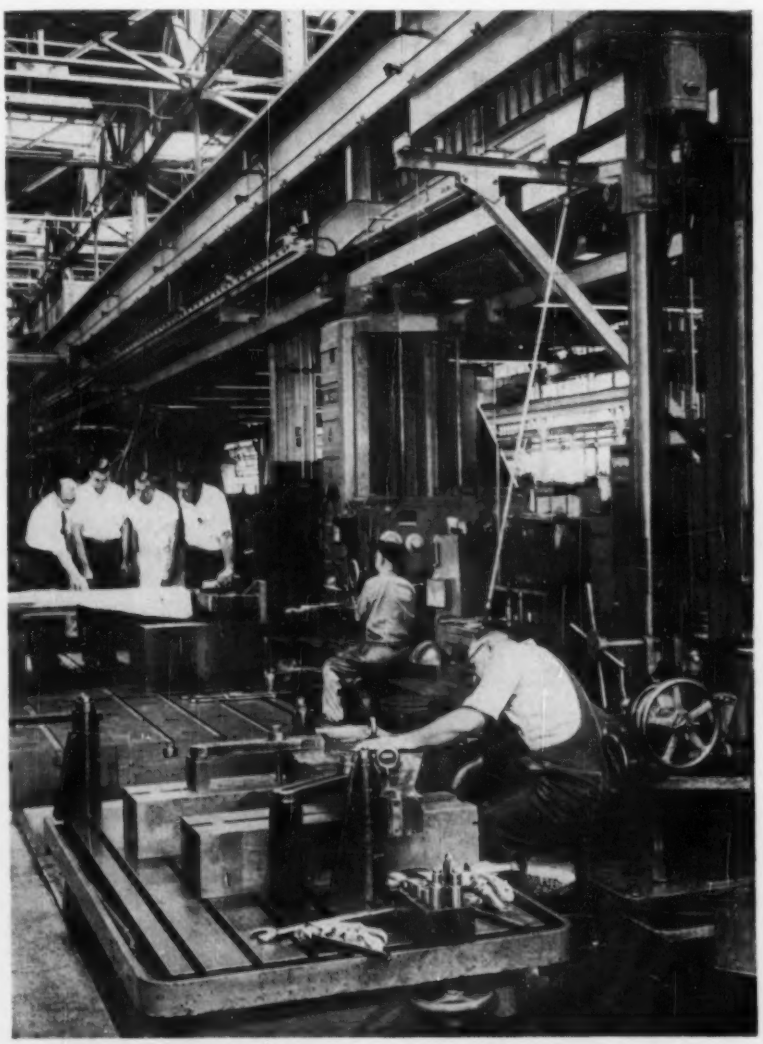
▪ Even staunch supporters of equipment replacement formulas have to "fly by the seat of their pants" at times.

Take the multi-divisioned A. O. Smith Corp., for example. Every year its 15 plants send scores of requests for replacement machinery to Milwaukee headquarters. There a four-man Capital Equipment Review Board scans each one carefully. This group makes every effort to analyze all such requests according to the firm's version of the MAPI (Machinery & Allied Products Institute) formula.

Doesn't Always Work—Still, no more than 40 pct of all the replacement purchases the Board recommends to the manufacturing vice president are actually supported by formula findings. The rest have to be substantiated in other ways.

Why won't the formula approach work in every case? The answer comes from S. K. Rudorf, Review Board member and assistant to the manufacturing vice president. In his opinion: "Replacement formulas are highly desirable and useful, but they're not yet perfect."

Rudorf, a former shop man, knows production, maintenance, tool and equipment design, and toolroom operations. Here's why he



UPKEEP'S NO PROBLEM: Cost of maintaining old horizontal drilling machine in foreground is nil. Even so, it must be replaced by a new and faster machine (rear).

ON THE COVER: Members of A. O. Smith's Equipment Review Board seated at table are (l. to r.): R. C. Josephson, supervisor, Mfg. Staff Dept.; E. Widerborg, mgr., Tool & Mfg. Div.; W. Froderman, purchasing agent in charge of Facilities; S. K. Rudorf, asst. to mfg. v. p. Speaker is W. A. Rauch, project supervisor.

likes the idea of a replacement formula despite its imperfections: "To shop people," he says, "it always seemed so simple that equipment had to be replaced before it fell apart. But we failed to see that it wasn't nearly that obvious to top management.

"So shop men waved their arms and talked in terms of loose gibs, backlash in screws, chatter in spindles. And the 'opposition' talked in terms of conservation of working capital, retirement of indebtedness, return on investment.

"Then the MAPI formula came along. Both groups saw it as a new tool with a number of important advantages."

Three Major Benefits—Topmost, according to Rudorf, is the way a formula uses terms the shop can understand. It talks about the cost of overhauling an old machine, or the price of a new one, or an expected increase in pieces per hour.

"Moreover," he says, "it translates these factors into accounting terminology which can be used to sell top management on the need for new equipment." He feels strongly that formulas should be kept simple.

"Next," he points out, "a formula demands orderly consideration of all factors that bear on the replacement question. It makes sure that nothing is overlooked in arriving at a decision."

As a third advantage, he credits this point: "The final document has a certain air about it. It's been worked out by experts. Shop people accept this 'expert' data more readily than data prepared by the regular staff. This approach also helps sell the request."

Notes Flaws, Too—But the firm sees shortcomings in the formula approach. Rudorf's biggest complaint: None of the formulas he's seen gives any consideration to a firm's cash position.

To prove his point, he cites the formula analysis the firm once made on several thousand equipment items: "The formula conclusion was that we couldn't afford not to buy $12 million worth of machinery. But to actually do so would have been disastrous. We settled for $2.3 millions' worth and ended up with a very satisfactory program."

Rudorf notes another flaw in the formula approach when it comes to choosing specific items for replacement.

Looks Beyond Figures—For example, he firmly believes that a well equipped toolroom is essential to any manufacturer; it provides a needed service, it develops mechanical skills, and it spawns supervisory personnel. "Yet with most replacement formulas," he says, "it's hard to show a 'paper' advantage for a toolroom machine."

He offers still another example where the straight arithmetical approach can be misleading. It's a case where the formula favors a replacement for Machine A much more than for Machine B. "But what if Machine B is almost on its last legs, too," he asks, "and you can't make your product without it?"

What Does a Tool Review Board Do?

It Applies Broad Experience

On A. O. Smith's Capital Equipment Review Board are the (1) technical assistant to the manufacturing vice president, (2) manager of the Tool & Mfg. Div., (3) supervisor of the Mfg. Staff Dept., (4) general purchasing agent in charge of Facilities.

It Looks at All Factors

A good Review Board does more than just weigh the merits of new machines vs. old ones. It may even question the process involved and suggest a new and better way to do the job.

It Rates Idle Tools

The Board keeps tabs on the age, condition and function of all idle tools in the various plants. It tries to put this equipment to use wherever possible.

It Switches Machinery

The board often approves switches of machines. For example, it may fill a repair shop's request for a new or replacement lathe with an older machine used regularly in the toolroom. In turn, the toolroom will get a new machine for its more precise work.

"Obviously you have to replace Machine B," he says. "Sometimes, though, it really gets to be a game of guessing which of several patients will expire first."

Omits Business Trends—Where business trends must be considered, a formula can lead to legitimate differences of opinion, too. It's one thing to work out a formula analysis where the type and volume of work are fairly well fixed and predictable. But it's not so easy with a diversified operation such as A. O. Smith's.

Management finds it hard to plot future business in exact numerical values. So replacement machines are often bought chiefly because a certain business sense—call it "intuition," or a "feel of the market" —says they'll do the most good.

For example, the company has customers who depend on it as their only source for certain component parts. We must then insure that we have the capacity to make these parts even in the event of a breakdown. In this particular case, we had only one press to make the parts. By any formula yardstick the press didn't need replacing, but these customers were nervous about what would happen if it ever broke down.

"To calm their nerves and ours, too," Rudorf says, "we spent $1 million for another press. We could see certain tangible returns on the investment, such as a modest increase in business volume. But the intangible considerations outweighed anything that could be put on paper."

Needs Hard Facts — The firm uses replacement-formula analysis only where it can apply reasonably factual data. Where data are largely intangible, it prefers to admit this honestly.

However, where there are only one or two seriously intangible variables it sometimes works out to two analyses: one with an optimistic outlook, the other on the dimmer side. Looking at the proposition both ways often helps the Review Board's decision.

TOOLROOMS VS. FORMULAS: Part of A. O. Smith's toolroom. Machines here are replaced regularly for other reasons than formula findings.

This twin-analysis technique points up another obvious fact: answers from replacement formulas are only as good as the data put into them. It's A. O. Smith's experience that input data can, with reasonable sincerity, be juggled to produce a wide range of answers.

For example, management knows it can only guess at such intangibles as the amount of maintenance new machines will need, or the portion of a market a new product will capture.

"I hope we won't attempt to run our business too much by computers," Rudorf says. "A solid knowledge of past performance is more reliable than hazy guesses about the future."

Winding up his list of formula short-comings, Rudorf disputes a widely held accounting concept: that machines become increasingly —finally overwhelmingly—costly to maintain. He observes that formulas worked out for demonstration purposes often show such examples.

"Surprising as it may seem," he says, "we've convinced ourselves on several occasions (once by analyzing over 600 machine tools) that the curve is more likely to slope in the other direction.

"We find that 'maintenance costs' are very high the first year a new machine is installed, while we're taking the 'bugs' out. But then through the years, except for occasional lumps of cost due to planned major overhauls, we tend to spend less and less on them.

"Finally our 'old cripples' cost us virtually nothing to maintain. Even without a formula, it's obvious that spending money on them would be fruitless — like giving oxygen to a corpse."

Technology vs. Age—With these older tools, A. O. Smith management feels that maintenance cost is almost beside the point. The firm's real cause for concern is the operating disadvantage that older tools develop as a result of technical obsolescence. "Fortunately," Rudorf says, "most equipment analyses bring this to light."

The firm intends to keep trying to apply its replacement formula wherever possible. And Rudorf and his Review Board associates believe that future versions of the basic MAPI formula will be more perfect and more widely used.

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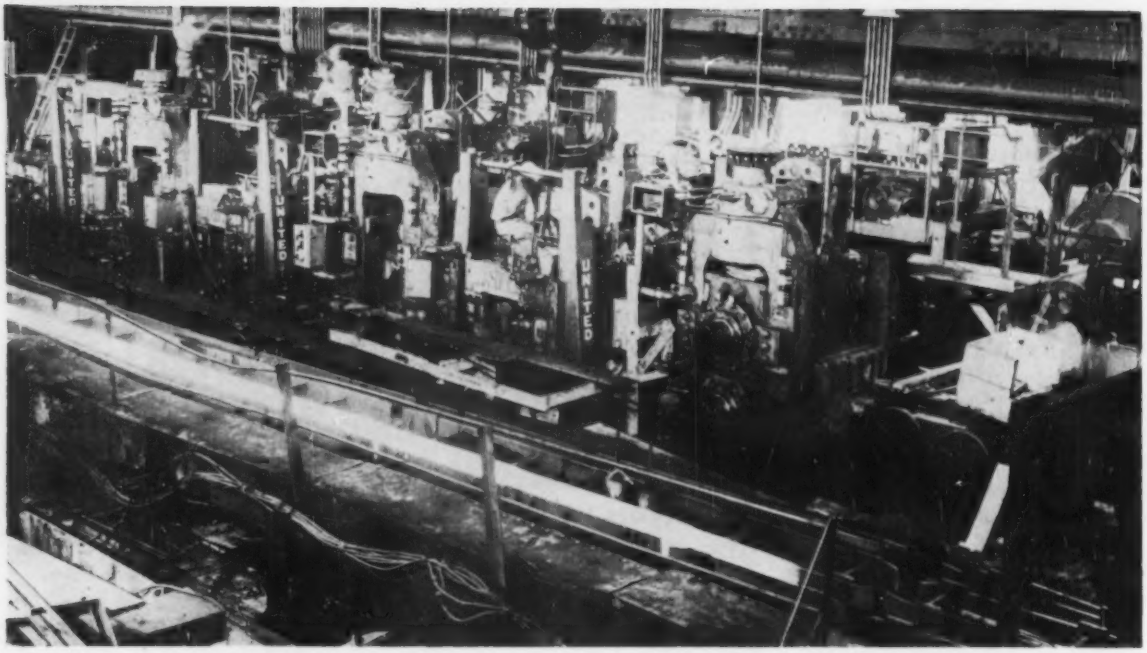
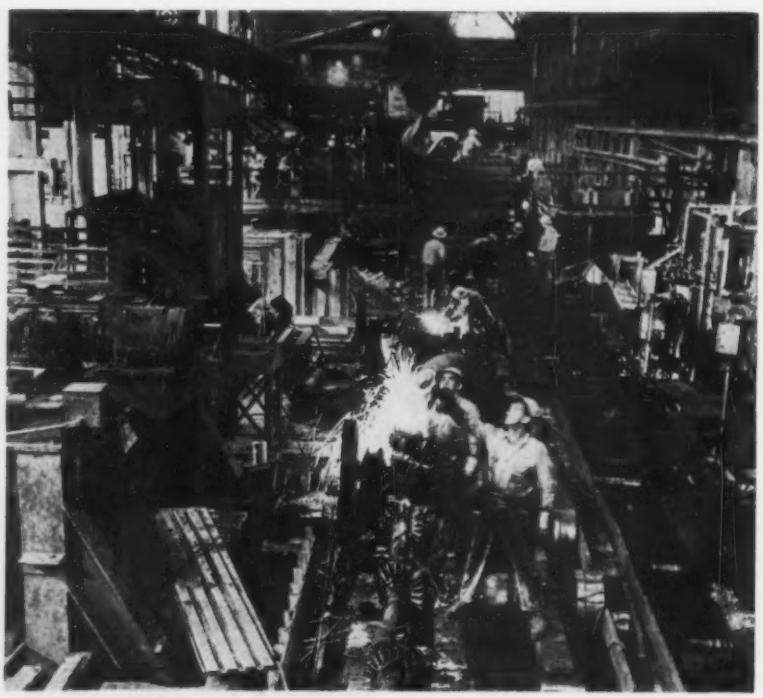


BUSINESS AS USUAL: Hot steel rolled through the old 28-in. mill as men did initial work on new one.

Installs Mill in Record Time

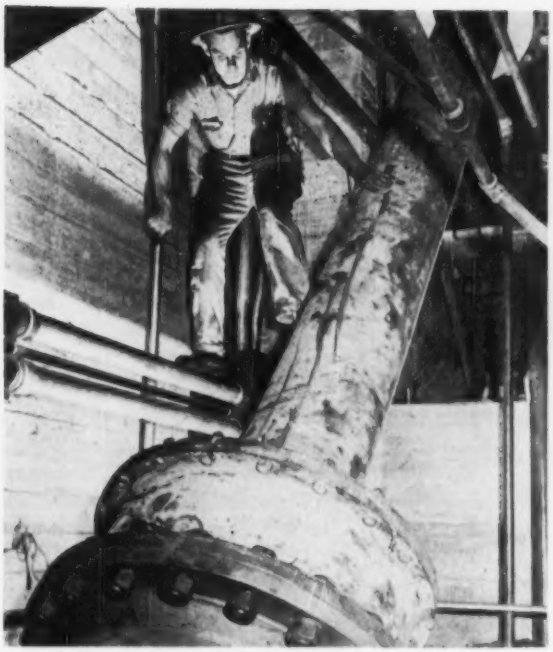


QUICK SWITCH: One crew took out the old 2-stand mill while others moved right in with the 6-stand giant. It began rolling last week.

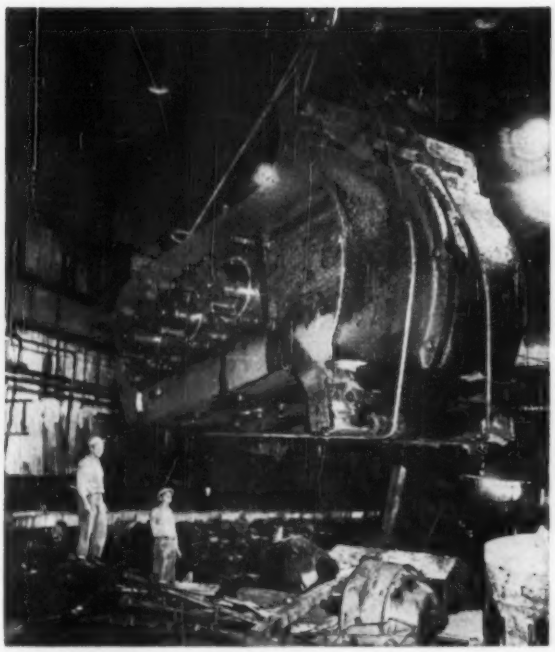
▪ A production delay of just 21 days was allotted for installation of a continuous 6-stand, 30-in. billet mill at Pittsburgh Steel Company's Monessen, Pa., Works.

The firm's engineers and its contractor, F. H. McGraw & Co., did the job in 20—a full day less than the schedule called for. Back of this engineering feat were months of careful planning. Much of the preliminary work was done while hot steel was still being processed above and alongside the crews on the company's old 28-in. steam-driven mill. Then, when the short shutdown went into effect, the builders went on a round-the-clock schedule.

The new $6 million mill, built by United Engineering & Foundry Co., has three horizontal and three vertical stands. Each is powered by a 1750-hp motor. It rolls blooms measuring 9 x 10 in. down to 4-in. squares and 4⅝-in. rounds for seamless tube production.

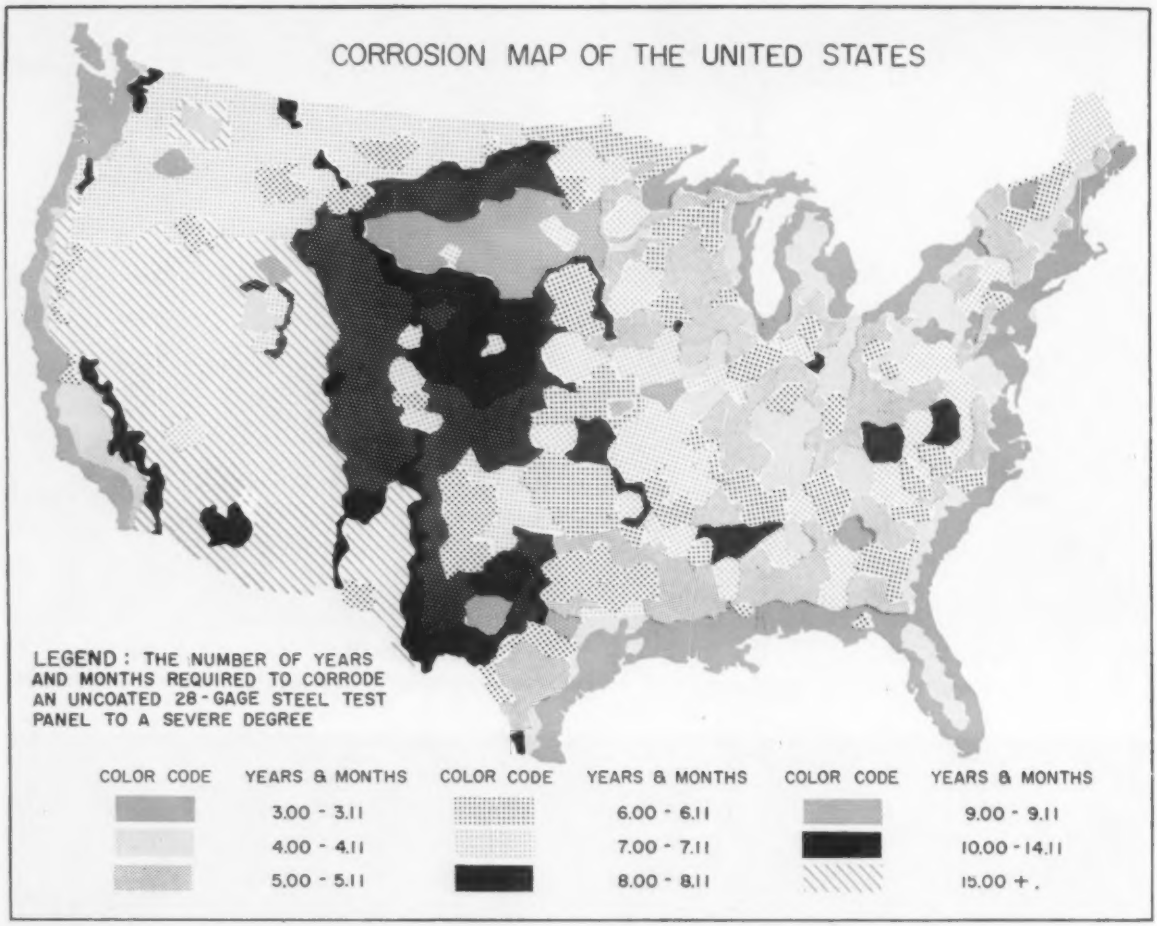


DOUBLECHECK: Pipefitter inspects one of the main shafts in cellar below new 30-in. billet mill.



FINAL TEARDOWN: One stand of the 50-year-old steam-driven mill is hoisted out of its bed at Monessen.

ONE DAY EARLY: First bloom enters Pittsburgh Steel's new $6 million billet mill just 20 days after the old one was shut down. Much of the basic work was done beforehand to minimize production delays.


CORROSION MAP OF THE UNITED STATES
LEGEND : THE NUMBER OF YEARS AND MONTHS REQUIRED TO CORRODE AN UNCOATED 28 - GAGE STEEL TEST PANEL TO A SEVERE DEGREE
COLOR CODE
YEARS & MONTHS
3.00 - 3.11
4.00 - 4.11
5.00 - 5.11
COLOR CODE
YEARS & MONTHS
6.00 - 6.11
7.00 - 7.11
8.00 - 8.11
COLOR CODE
YEARS & MONTHS
9.00 - 9.11
10.00 - 14.11
15.00 + .

New Corrosion Index Shows Nation's Rust Pattern

How severe is rusting in your particular area?

To what extent should you prepare for corrosion's onslaught?

Do your protective standards allow for wide geographic differences?

Here's an accurate picture of relative rusting rates in every major U. S. city.

▪ The different rates at which rust eats through uncoated steel have been established for 523 U. S. cities over 10,000 population. Compiled by Rust-Oleum Corp., Evanston, Ill., the Rust Index is based on test-panel exposure results collected over the past 25 years.

It shows, for example, that rust takes three years to corrode a standard test panel, the size of an auto license plate, in four different cities —Buffalo and Rochester, N. Y., Erie, Pa., and Miami, Fla. This is the fastest rate recorded. Slowest rust rate, more than 15 years, is in Tucson, Ariz., Roswell and Santa Fe, N. M. In all the nation's major industrial centers the rust rate is under four years.

Table I lists the areas where corrosion was found most severe. Table II is a condensed version of the Rust Index, listing only cities with 100,000 or more population in the 1950 Census. In addition to the Index, Rust-Oleum prepared a rust map of the United States. This

gives a bird's-eye view of comparative rusting rates in terms of areas rather than by cities.

How It Came About — During the past quarter-century, the company's salesmen have been covering almost every city and hamlet in the country. In visiting industrial plants, they regularly set up test panels. The test panels are 10 in. long, 5 in. wide, and made of low carbon, cold-rolled 28-gage sheet steel.

Some of the panels were coated with Rust-Oleum. Others were left uncoated. They were then dated and left in a position exposed to all the elements. Over the following years, the Rust-Oleum representatives would call back to see how the panels looked.

By this process, the firm has amassed voluminous data on the rate of corrosion of unprotected metal in all parts of the country.

Rural Areas Best — Of all the rust-inducing atmospheres and environments to which steel structures are subjected, the rural atmosphere is the mildest. Rural atmospheres vary in severity only because of variations in climate. Here, the corrosive elements are mainly oxygen, water, and ultra-violet light. Wind and dust may speed the process.

But even in rural areas, there is a wide difference in rust-inducing climates. Rust proceeds at different rates in the dry, hot Southwest; the dry, cold West; the damp, inland-coastal regions of the North, the South and the Pacific Coast; and the wet, wind-swept areas around the Great Lakes.

The rate of corrosion in cities is much greater than in rural areas because of corrosive gases and mists. Accelerated corrosion in industrial atmospheres is caused mainly by gaseous compounds of sulphur. These gases, when dissolved in water, form sulfurous and sulfuric acids. Thus, the dew, rain, or fog in industrial areas is actually a weak acid which acts as an electrolyte.

Table I | The 50 Cities Where Rust Forms Fastest

City	Rust Index, Years-Months*	City	Rust Index, Years-Months*
Buffalo, N. Y.	3.00	Jacksonville, Fla.	3.04
Erie, Pa.	3.00	Portland, Ore.	3.04
Miami, Fla.	3.00	Providence, R. I.	3.04
Rochester, N. Y.	3.00	Chicago, Ill.	3.05
Mobile, Ala.	3.01	Cicero, Ill.	3.05
New Orleans, La.	3.01	Lakewood, O.	3.05
Pensacola, Fla.	3.01	Lewiston, Me.	3.05
Pittsburgh, Pa.	3.01	Milwaukee, Wis.	3.05
Baton Rouge, La.	3.02	Portland, Me.	3.05
Lafayette, La.	3.02	Seattle, Wash.	3.05
Los Angeles, Calif.	3.02	Sharon, Pa.	3.05
Norfolk, Va.	3.02	Wilkinsburg, Pa.	3.05
Norristown, Pa.	3.02	Bayonne, N. J.	3.06
Atlanta, Ga.	3.03	Bellingham, Wash.	3.06
Atlantic City, N. J.	3.03	Galveston, Tex.	3.06
Baltimore, Md.	3.03	Lackawanna, N. Y.	3.06
Cleveland, O.	3.03	Lake Charles, La.	3.06
Cleveland Heights, O.	3.03	Lockport, N. Y.	3.06
East Cleveland, O.	3.03	Manitowoc, Wis.	3.06
Elyria, O.	3.03	Newport, R. I.	3.06
Euclid, O.	3.03	Newport News, Va.	3.06
Houston, Tex.	3.03	New York, N. Y.	3.06
Johnstown, Pa.	3.03	Portsmouth, Va.	3.06
Shaker Heights, O.	3.03	Reading, Pa.	3.06
Youngstown, O.	3.03	Warwick, R. I.	3.06

* How long it takes uncoated steel to become badly corroded.

Sea Air Is Rough—Marine atmospheres are also severe. Sea water contains about 3 pct, by weight, of ordinary salt in water, along with a number of other salts present in very small quantity. It develops pits in steel, weakening the structure much more than if corrosion occurred over the entire surface in a uniform layer. Salt water is often carried inland by winds and fog.

Use of chloride salts for de-icing highways is another serious corrosion problem for steel highway structures and industrial plants near highways, as well as for autos and trucks.

Revised Upward — Out of the Rust-Oleum study has come a new estimate placing today's cost of corrosion at $7.5 billion per year.

The cost to railroads is $500 mil-

Table II | Rusting Rate in Principal U. S. Cities

City	Rust Index, Years-Months*	City	Rust Index, Years-Months*	City	Rust Index, Years-Months*
Birmingham, Ala.	4.04	Louisville, Ky.	3.11	Utica, N. Y.	5.09
Mobile	3.01	Baton Rouge, La.	3.02	Yonkers	3.11
Montgomery	5.06	New Orleans	3.01	Charlotte, N. C.	6.06
Phoenix, Ariz.	8.09	Shreveport	4.04	Akron, O.	5.06
Little Rock, Ark.	6.09	Portland, Me.	3.05	Canton	5.06
Berkeley, Calif.	3.11	Baltimore, Md.	3.03	Cincinnati	4.11
Fresno	4.05	Boston, Mass.	3.10	Cleveland	3.03
Glendale	3.11	Cambridge	3.11	Columbus	5.01
Long Beach	3.11	Fall River	3.11	Dayton	4.11
Los Angeles	3.02	Lowell	3.11	Toledo	3.10
Oakland	3.08	Lynn	3.11	Youngstown	3.03
Pasadena	3.08	New Bedford	3.10	Oklahoma City, Okla.	6.05
Richmond	3.11	Somerville	3.10	Tulsa	6.07
Sacramento	5.05	Springfield	3.10	Portland, Ore.	3.04
San Diego	3.09	Worcester	3.11	Allentown, Pa.	3.11
San Francisco	3.09	Detroit, Mich.	3.08	Erie	3.00
San Jose	3.10	Flint	3.11	Philadelphia	3.08
Denver, Colo.	7.02	Grand Rapids	3.09	Pittsburgh	3.01
Bridgeport, Conn.	3.11	Lansing	4.03	Reading	3.06
Hartford	4.03	Saginaw	3.10	Scranton	3.07
New Haven	3.10	Duluth, Minn.	3.09	Providence, R. I.	3.04
Waterbury	4.03	Minneapolis	4.11	Chattanooga, Tenn.	6.08
Wilmington, Del.	3.11	St. Paul	4.11	Knoxville	4.05
Jacksonville, Fla.	3.04	Jackson	7.10	Memphis	5.10
Miami	3.00	Kansas City, Mo.	5.07	Nashville	4.04
St. Petersburg	3.09	St. Louis	3.10	Austin, Tex.	7.01
Tampa	3.07	Lincoln, Neb.	7.09	Corpus Christi	3.09
Atlanta, Ga.	3.03	Omaha	6.07	Dallas	6.10
Savannah	3.09	Camden, N. J.	3.11	El Paso	6.10
Chicago, Ill.	3.05	Elizabeth	4.02	Fort Worth	6.10
Peoria	4.03	Jersey City	3.08	Houston	3.03
Rockford	5.01	Newark	3.08	San Antonio	5.10
Evansville, Ind.	4.04	Paterson	3.07	Salt Lake City, Utah	4.05
Fort Wayne	6.06	Trenton	3.11	Norfolk, Va.	3.02
Gary	3.08	Albuquerque, N. M.	10+	Richmond	5.09
Indianapolis	5.03	Albany, N. Y.	5.07	Seattle, Wash.	3.05
South Bend	3.10	Buffalo	3.00	Spokane	4.11
Des Moines, Ia.	5.03	New York	3.06	Tacoma	3.11
Kansas City, Kan.	6.05	Rochester	3.00	Madison, Wis.	5.01
Wichita	7.09	Syracuse	3.11	Milwaukee	3.05

* How long it takes uncoated steel to become badly corroded.

lion annually; for the U. S. Navy, $100 million. Farmers pay an estimated $300 million a year for rust damage, an average of $480 per year per farmer for rust-destroyed tractors, discs, harrows and other equipment. Homeowners face an annual $1.25 billion bill for corrosion damage in and around houses.

Corrosion is a factor in the junking of 4 million automobiles annually. Cables, pipes, and foundations suffer $1 billion damage each year just from contact with the wet earth. And for metalworking as a whole, the losses are staggering.

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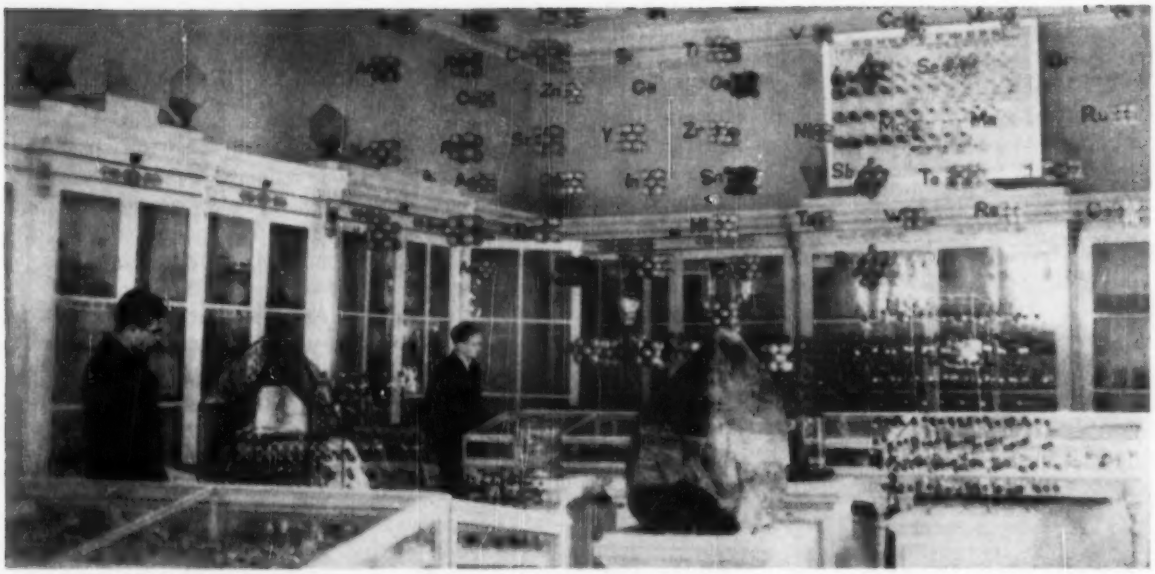


ALL THE ELEMENTS: Visual aids are widely used in Soviet schools. In the Leningrad Mining Institute, a display of atomic models arranged in the periodic system is suspended from a laboratory ceiling.

Where Is Russia Headed In Metalworking?

By **C. G. Goetzel**—Senior Research Scientist, Dept. of Metallurgical Engineering, New York University

There's a great deal of speculation these days as to where the Russians stand in metals technology.

Here's a first-hand account of current developments in the Soviet Union.

▪ As a result of an exchange agreement between New York University and the Moscow Steel Institute, I was one of 11 American metallurgists who formed a technical mission to Russia late last year.

The itinerary of our group included the cities of Moscow, Leningrad, Kiev, and Swerdlorsk. My own assignment took me to the steel plant and mining combine in Magnitogorsk.

A visit to the permanent U.S.S.R. Agricultural and Industrial Exhibition in Moscow proved quite revealing. It shows the Soviets are using up-to-date methods and have attained a high degree of automation in mining and steelmaking.

Modern Machines—In the Heavy Machine Building exhibition hall, several large-scale models of heavy hydraulic forging and extrusion presses and rolling mills were on display. An operating model of a 30,000-ton hydraulic press, and one of a horizontal hydraulic forge for forging rods up to 225 mm (8.86 in.) diam were displayed. A 100 meter-ton anvilless hammer was most impressive.

Other models on display in this section included a continuous sheet mill for 2.5 m width (98.4 in.); a reversible cold rolling mill for 2.8 m (110.2 in.) aluminum sheets; a mill for rolling 40 mm (1.6 in.) balls at the rate of 120 per minute utilizing transverse rolling from bar stock; and a rolling mill for steel and nonferrous alloy pipe and tubing with 8 to 15 mm OD (0.3 to 0.6 in.) and a wall thickness up to 0.025 mm (0.001 in.).

Aids to Education—Some of us visited the Leningrad Mining Institute. The laboratory specializes in the study of atomic size and unit cells of metals associated with the many minerals found in the Soviet Union. These minerals are ordered according to their crystallo-chemical compositions, and complex atomic models are used in their study. No money or effort is spared to teach through demonstration and visual aids.

A visit to the Polytechnic Institute of Leningrad included a tour of the electrometallurgical laboratory. Its modern melting techniques indicate that exceptional facilities are available to engineering students in the Soviet Union.

In addition to several arc melting furnaces of conventional design, the laboratory has an induction melting unit for high vacuum work with movable, watercooled copper hearth.

Use Levitation — Most impressive, however, were four levitation and zone refining furnaces of different capacities and designs. All are operative in vacuum, as well as in argon or air. The largest unit was in operation. We watched a test foi efficiency of the inductance for levitation melting of a large aluminum bar 40 mm (1.6 in.) diam.

Dual inductance is used in two of the furnaces. One inductor works at a low frequency for suspension of the charge and the other at a high frequency for melting.

In one furnace, the low frequency inductance source is on top and holds the charge in the form of a small ingot; the high frequency inductance source for melting is at the bottom. In the other furnace, the low frequency inductance source is an inner ring, while high frequency inductance comes from an outer coil. Both furnaces are claimed to melt masses in excess of 3 kg (6.6 lb) of titanium and 5 kg (11 lb) of zirconium.

Drip, Zone Melting—An interesting feature of these furnaces is their adaptability to continuous melting and for a combination of levitation and drip melting. The fields of the upper and inner induction coils are powerful enough to suspend a tube or rod. The metal is gradually lowered into the field of the lower coil; here it becomes molten and drips to collect in the hearth.

In another furnace, melting takes place on a watercooled hearth or on the metal itself for purposes of zone refining. A deeply grooved or fluted cylinder provides a large surface for cooling and a concentration of the liquid zone in the center.

After our return to Moscow, several of us headed for Magnitogorsk. The plant was originally built with the help of American engineers in the early thirties. It now produces six million tons of steel per year and employs 38,000 people.

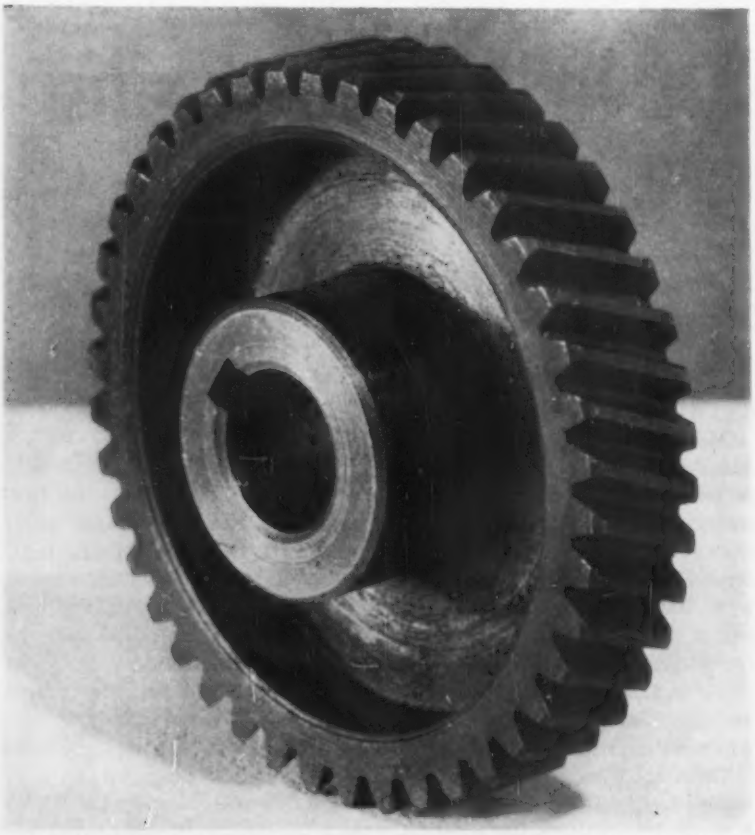
Long Furnace Life — Magnitogorsk has four large blast furnaces and several smaller ones. Some of the furnaces have been in existence for as long as 13 years and still have their first hearths. This performance is attributed to the carbon brick used in the hearth and foundation. Furnace shafts are said to average 4 years.

We watched the tapping and pouring of one blast furnace. The liquid pig iron filled 5 of the department's 44 ladles on flatcars. Each ladle holds 60 tons. Pouring takes place every 3 hours, so total production of the furnace is about 2300 to 2400 tons of pig iron per day.

Slag was poured into 8 of the department's 120 slag ladles (11 cu m capacity, or 14.4 cu yd) on flatcars on an outside rail siding. The ratio of slag to pig iron was given as 500 to 600 kg (1103 to 1323 lb) per ton of metal. The ore component of the furnace charge consisted mainly of hot Dwight-Lloyd sinter.

Big Openhearths — The openhearth shop we visited houses eleven 400-ton and two 200-ton furnaces. All operated on coke oven gas, except one which was being oil-fired on an experimental basis. Four overhead cranes carry ladles containing furnace charges.

One of the 400-ton furnaces was being repaired. It produced 450



FURTHER EVIDENCE: Steel gear is form rolled at TsNIITMash.

heats before overhauling became necessary. The smaller furnaces can turn out up to 650 heats before overhauling. Furnace ends are sometimes repaired after some 200 heats; this is done while the furnace is still hot.

The furnace being overhauled was cooled down enough to permit rebuilding the roof and parts of walls. Long roof life is attributed to two factors: high rigidity achieved through a very heavy steel framework which stops expansion of the brickwork beyond a certain point and prevents buckling; and to the composition of the brickwork, which is basic in nature and chosen to prevent spalling.

We were told that the complete overhaul took 130 workers only 20 hours. Quite a few of the bricklayers were women.

Back in Moscow—We spent a full day at the Central Scientific Institute for Technology and Machine Building (TsNIITMash).

The first impressive sight of our tour was a huge foundry devoted entirely to experimental work. At one end, a nodular cast iron foundry was in operation. Pure magnesium rather than a Mg-Ni alloy was used. The melt was kept under a high magnesium vapor pressure of about 2 atmospheres in a tilting ladle lined with acid refractory brick.

The ladle used in the demonstration had ¼-ton capacity. A large one of 1½ tons was nearby but not in use. The ladle had two extensions: one was the pouring spout, through which the molten iron from the cupola was poured initially; the other contained a receptacle with the magnesium, which became molten when the ladle was tilted so the molten iron could hit it.

The amount of magnesium added per charge was 0.3 pct, of which 0.1 pct was said to be retained in the metal. The technique works so well that they have a 20-ton furnace under construction.

Shell Molding — Our attention was drawn to a shell molding operation based on sodium silicate sand molds. CO passing through the mold decomposes the silicate to colloidal silica gel, which forms the bond between the sand grains. A 3-minute cycle took care of this process plus the movement of molten metal through a compressed-air blast.

At the other end of the foundry, preparations were going on for pouring a large turbine rotor. Originally these rotors were produced by conventional air casting, but the reject rate was about 50 pct. Recently, experiments were made with vacuum casting; the reject rate has been reduced to virtually zero.

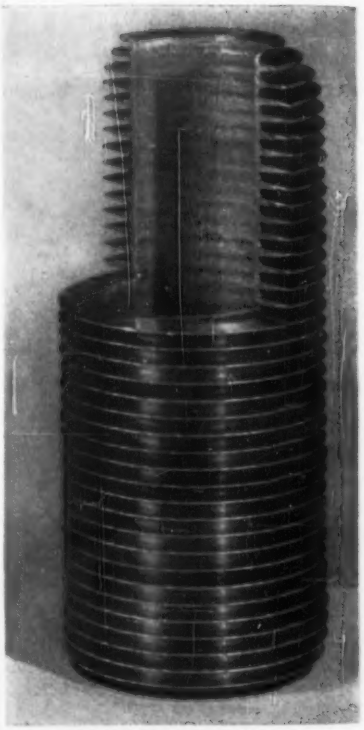
We were briefly shown the electrometallurgical laboratory which contained several induction furnaces for 150-kg (330-lb) melts. There was a vacuum induction furnace, also for 150-kg melts. A 50-kg (110-lb) arc furnace was the third major type of equipment.

Advanced Form Rolling—Quite impressive also were the experimental rolling mill, extrusion and forge shops. Special form rolling equipment of their own design for rib-rolling of aluminum and brass heat exchangers and steel gears were demonstrated.

Another unit of their own design was a hot rolling mill for bearing balls. Each roll revolution yielded one ball at a rate of 200 per minute. Ordinary carbon steel was used for balls for the cement and mining industries, 2 pct Cr steel for bearing balls. We were told that the method produced a 20 pct saving in material over conventional upsetting and machining practices.

Also of great interest were several demonstrations in experimental gas turbine blade forming, by extrusion and by rolling. In one process, steel blades were made by a single step extrusion, using either glass or a graphite-base lubricant. A piercer formed the cavity of hollow blades.

Roll Stainless Blades — Blade rolling was demonstrated on type 403 stainless steel blades for compressors and low-temperature steam turbine stages. Rolls were said to be of hardened alloy steel. We were told they were experimenting with the rolling of blades from type 25-20 stainless and Nimonic 80 and 90, but results so far were inconclusive.



ROLLED RIBS: Form rolling is one of the many development projects underway at Moscow's huge Central Scientific Institute for Technology and Machine Building. This is a heat-exchanger tube.

Before leaving the department, we saw several large wall displays showing some of the equipment built by the Institute for industry. Notable items were a 200-ton vacuum melting furnace and several water turbine blades weighing 25 tons each.

Overall Impressions—Considering the short time span in which the Soviets have developed their huge industrial potential, their progress has been phenomenal.

There are many fields in which they are our equals, and a few in which they seem to have outdistanced us considerably.

How To Harden Steel Rolls

By C. J. McCormick—Superintendent Forge Specialty, Bethlehem Steel Co., Bethlehem

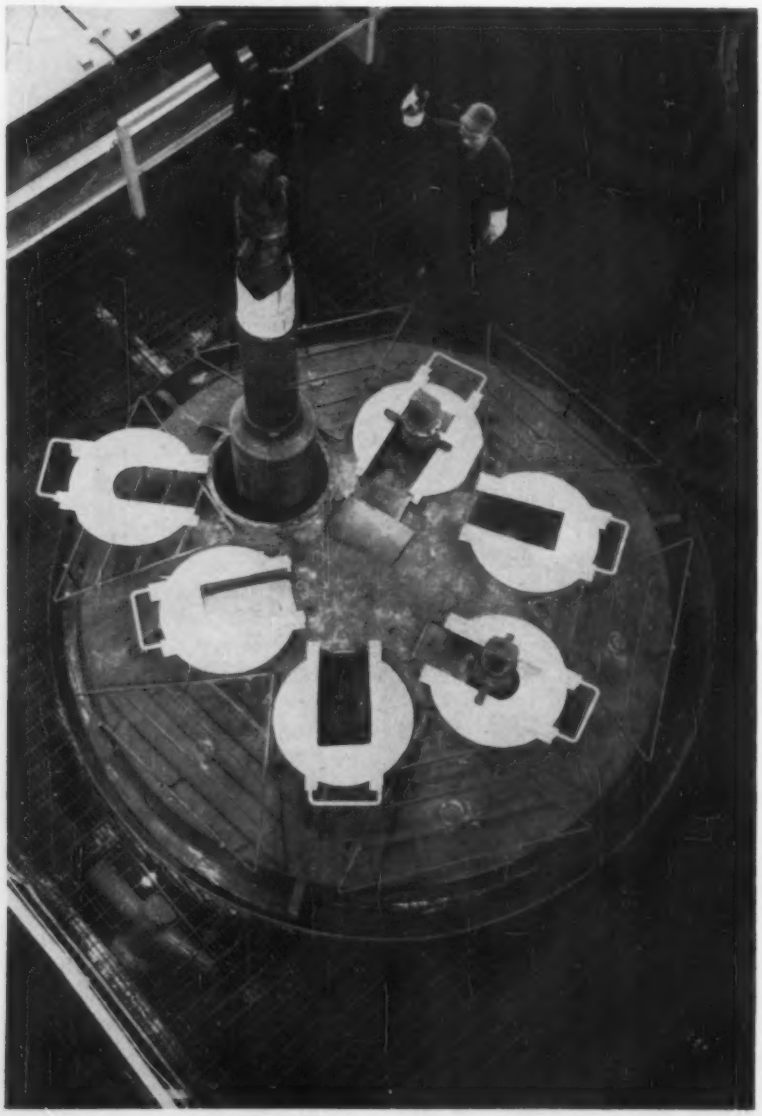
It's the rolls that take much of the punishment in rolling mill operations.

But close control of roll production gives them the ability to withstand extremely rugged service.

▪ Hardened steel rolls come in every shape, size and finish. For one producer, they range from 5 to 60,000 lb and from 40 to 105 in hardness (Shore sclerescope). The firm, Bethlehem Steel Co., has an annual production of 5000 rolls.

It takes versatile equipment to handle such a range. Rolls are generally forged of high-carbon chromium electric-furnace or open hearth steels, with additions of molybdenum and vanadium.

The steel, teemed into corrugated ingot molds, is stripped hot and transferred to reheating furnaces. Ingots, from 16 to 78 in. diam, weigh up to 155,000 lb.



PREHEATING UNIT: Gas-fired preheat furnace holds six rolls at a time.

Forging in Two Steps—Forging takes place in two steps with intermediate reheating. The reduction in area is a minimum of 3:1 from ingot to forging size.

A preliminary treatment follows forging to insure internal soundness, to facilitate machining and to make it more responsive to final hardening. It also establishes the mechanical properties in the journals.

Sufficient metal removed from the surface eliminates decarburization caused by previous heating. On completion of the boring operation, a bore-scope inspection supplements close examination of the roll surface.

To attain special journal hardness, an oil quenching operation is done on the rough-turned, bored forging.

Hardening Takes Teamwork—Hardening of the rolls involves a series of closely-controlled interrelated operations. After being ground to provide a smooth surface, the rolls are preheated in two steps in three gas-fired vertical furnaces equipped with automatic control. Each furnace accomodates six rolls.

Following the preheat, two vertical furnaces provide uniform distribution of heat for the austenitizing operation. The journals remain outside the furnace during the heating, made possible by adjusting either the cover or the hearth of the furnace.

A vertical spray tank is used in quenching the rolls. To provide the violent agitation needed, the pumps can supply 18,000 gpm through a network of orifices which honeycomb the inner walls of the quenching tanks.

Avoids Steam Trap—The resulting drastic quenching imparts high surface hardness and a deep chill. It prevents irregularities in hardness which might result if steam were trapped on the roll surface during the early stages of the chill.

Quenching water, supplied from deep wells, permits control of water temperature in a 60° to 70°F range to increase effectiveness of the quench.

Care in the tempering of the highly stressed quenched rolls is vital in preventing thermal shock. So that there will be no need to hurry this operation, eight tempering furnaces of 200° to 600°F range, and four of 300° to 1200°F range provide sufficient capacity.

These gas-fired furnaces employ air in a recirculatory system. Regulators automatically control heating and cooling rates.

Dual Surface Check — The results of the hardening and tempering operations are checked with the Shore sclerescope. The Penetrascope, a recently-developed testing device, has also been found convenient and accurate for roll testing. It combines portability with the precision of the Rockwell machine and is used in correlation with the Shore measurements.

Use of a soft wheel to rough grind the hardened rolls prevents overheating of the sensitive roll surface. It removes minor distortions and reduces the body diameter to a size suitable for finish grinding.

Bearings are also machined with sufficient allowance for finishing. Plugs, either screw-type of drive-fit, are placed in the bored ends. The milling of the driver details

CONTROL FINISH: Ground finishes range from 1 to 35 microinches.

Wide Range of Use Demands Special Treatment

Semi-Hard Alloy Steel Rolls

Back-up Rolls — In four-high mills, these rolls load and support the work rolls. Two types are supplied: composite and integral. Composite rolls consist of forged steel sleeves assemblies on forged or cast steel arbors. When the sleeves are worn down, they can be removed and the arbors resleeved. Integral rolls made with the same depth hardness as the composite type, require a depth-hardening steel.

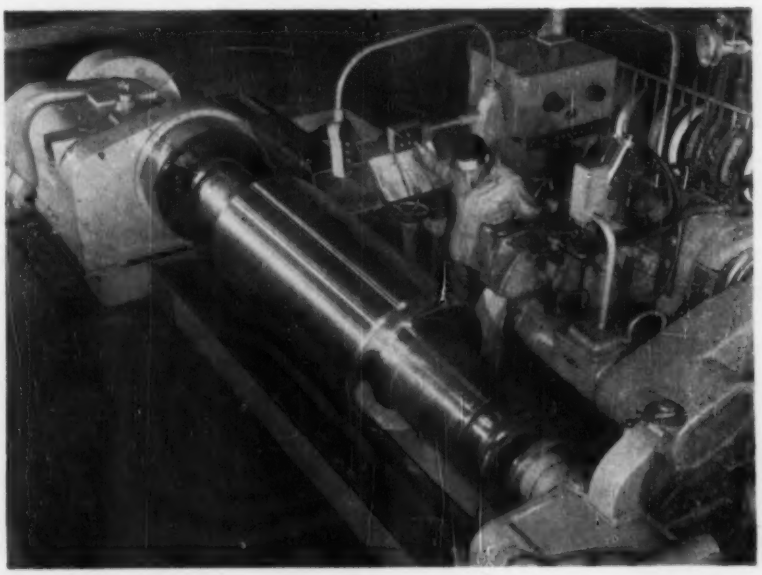
Break-down Rolls—For hot-rolling nonferrous slabs, these are used on slabs heated from 700° to 1650°F. Aluminum slabs are usually heated to 950°F. A hardness of 70 to 75 Shore prevents aluminum from sticking. Copper slabs are heated to 1650°F where tempering from 50 to 55 Shore minimizes danger of surface cracking.

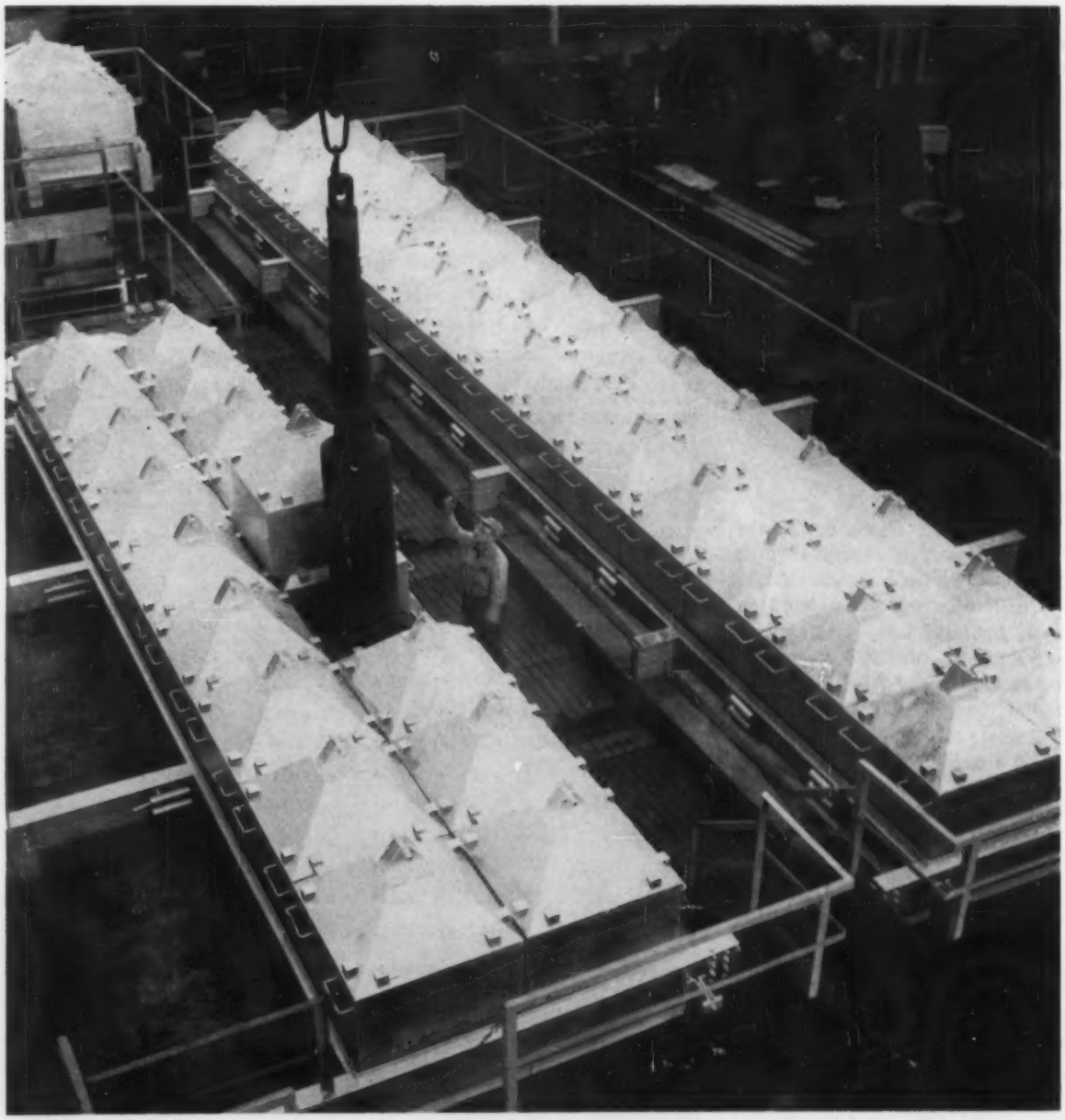
Auxiliary Rolls — These include pinch rolls, straightening rolls, leveller rolls and many other types. One member of this group is the pipe-mill roll where success of treatment hinges on a uniformly heated salt bath and maximum agitation during quenching.

Fully Hardened Steel Rolls

For Rolling Ferrous Metals—Sufficient depth of chill must be imparted to resist impact caused by the entry of the sheet in the mill. A hardness range of 85 to 95 is most desirable. In finishing mills however, with small reductions, rolls of 100 to 105 Shore can be used to obtain a fine finish.

For Rolling Nonferrous Metals—Heavy screw-down loads place a severe burden on roll journals. A tough, sorbitic structure keeps journal failures to a minimum.





TEMPERING CAPACITY: Adequate furnace capacity is essential to prevent hurrying of vital tempering cycles.

of the journals is done to close tolerances.

Control Final Finish—Application of the final finish to a hardened steel roll calls for the ultimate in control. Ground finishes range from 1 to 35 microinches. For the ferrous trade it's 0 to 3 microinches.

The development of tapered journal bearings is an additional challenge to the roll manufacturer, as the tapered area must be ground with precision and the journals must be closely mated. Equipment includes one 24-in. and three 36-in. roll grinders.

Final inspection includes a check of all dimensions, a recheck of surface hardness, and careful examination for defects such as inclusions, wheel burns and soft spots. As soon as the roll has passed, it is covered with a rust preventive and carefully crated in a box or on skids. For export the box is lined with zinc and all joints are soldered.

Many users get extra life from their rolls by having them rehardened. This work frequently involves repair of scored and undersized bearing journals which are rebuilt by submerged-arc welding. A modern dual-head unit performs this service.

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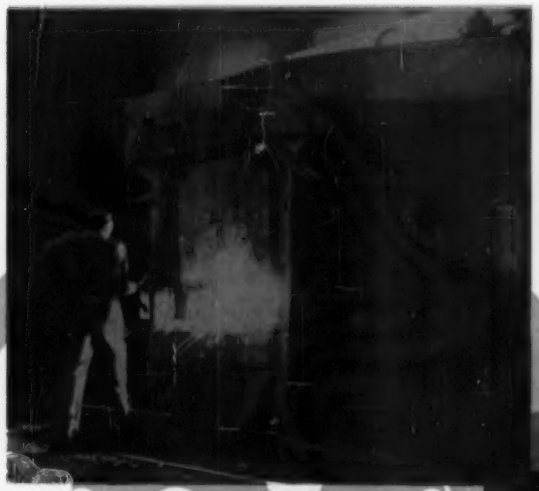

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NEW

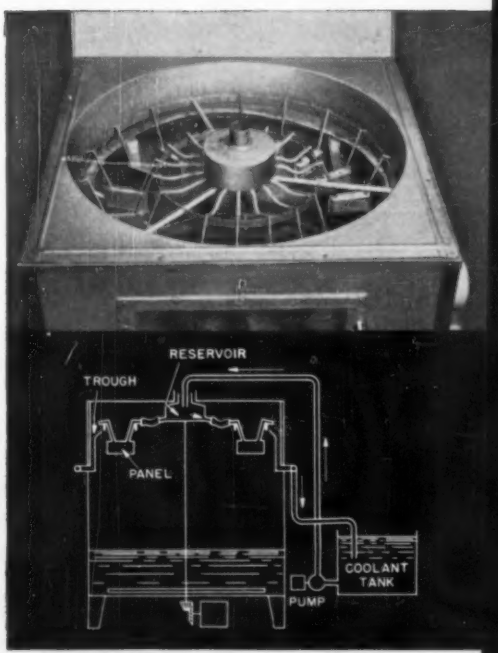
from Standard Oil THE MAGIC BOX

Corrosion steals $5.5 billion from industry annually. Standard Oil is in the forefront of the fight to control this loss. Standard's research scientists have developed a new method for measuring the effectiveness of rust preventives. This new test takes less than one-twentieth of the time of previous tests—and is about three times as precise.

Using a controlled humidity cabinet for testing corrosion, these Standard research men installed a system for cooling metal test panels (previously treated with rust preventive) so that their surface temperatures are lower than the temperature in the cabinet. Temperatures of panel surfaces and of cabinet atmosphere are held accurately. Controlling the temperature of the panels controls the rate at which water condenses on them. This in turn (for the first time) permits accurate control of the amount of condensation on the panels. Rust preventives are more speedily and precisely tested. Science, as a result of this work, has a new tool with which to test corrosion.

This is the research pay-out industry receives from Standard Oil. This is the something extra that backs up the Standard Oil industrial lubrication specialist who calls on you. This is the something extra found in the products he has to sell.

To know more about how Standard Oil industrial lubrication specialists—and Standard's research program—can help you, call the Standard Oil office nearest you in any of the 15 Midwest and Rocky Mountain states. Or write **Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.**



Top view and cross section of Accelerated Corrosion Test cabinet.

You expect more from STANDARD and get it!

Edgar A. Dieman, Standard Oil scientist, inventor of a new Rust Preventive System, inspects metal panel that has been tested in humidity cabinet.

New Catalogues And Bulletins

Small Parts

Special services offered by a maker of small insert diecast and plastic molded parts are described in a bulletin. It tells how an automatic process turns out finished small parts. (Gries Reproducer Corp.)

For free copy circle No. 1 on postcard, p. 75

Scrap Press

Up to 240 bales an hour can be put out by a scrap press described in a 4-page bulletin. Bale size (variable) is 6 x 12 x 8 in. Bale weight averages 40 lb. (Logemann Brothers Co.)

For free copy circle No. 2 on postcard, p. 75

Tube Bender

You can slash costs by using a new tube bender, says a 4-page bulletin. It shows a flexible ball mandrel in action. (Pines Engineering Co.)

For free copy circle No. 3 on postcard, p. 75

Tough Tube

You can try to break a new tubing, twist it, pull it, distort it, knot it—but the bore remains the same. A data sheet with a sample of the tubing will let you see for yourself. (Newage International Inc.)

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Power Unit

Precise 400-cycle power units for laboratory or factory use are detailed in an 8-page brochure. (Leach Corp.)

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Barrel Finishing

Barrel finishing machines and tumbling barrels appear in a catalog-data book. (Baird Machine Co.)

For free copy circle No. 6 on postcard, p. 75

Blast Marking

Recent bulletins describe blast-etch marking machines. Standard stationary models to portable and inspection type units are mentioned. Machines mark with a blast of extremely fine aluminum oxide grit. (Jas. H. Matthews & Co.)

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Layout Machine

For precision table-top work, a new drilling-layout machine reduces time needed for sheet metal layouts and templates. It eliminates base line drawings and vernier height gages. (Wales Strippit Co.)

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Loading Pipe

How a cast iron pipe firm loads pipe to reduce damage in transit and cut customer unloading time is told in a 4-page report. (Acme Steel Co.)

For free copy circle No. 9 on postcard, p. 75

Safety Goggles

Goggles that protect against chemical splash are described in a

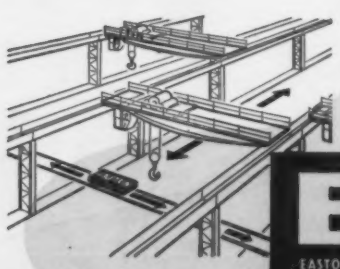
Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 75.

CROSS-BAY® CAR

GASOLINE-HYDRAULIC

(Also available with electric or storage battery power)

CUSTOM BUILT Trade Mark



CUSTOM-BUILT in capacities from 5 to 500 tons. Supplements overhead crane work in multiple-bay plants. Also for low-cost, heavy-duty service between buildings, storage and shipping areas.

Write or telephone for technical information.

EASTON®

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA.

A-1080

A word to the refractory-wise on . . .

How to make good use of bad times

Remember how management not long ago kept pressuring for "more production." There was no time then for analyzing productive efficiency. So a mild recession isn't all bad . . . *if it gives you badly needed time*—time to spot areas where you can cut operating costs.

For instance: It's highly probable that there are several areas where you could save by substituting one of our special-purpose refractory materials. Especially in "vulnerable" areas exposed to flames, abrasion, corrosion, high heat or heavy loads. Or, in "working" areas where the heat must pass *through* the refractory evenly and rapidly.

For example: One of our customers replaced his fireclay hearth with our CARBOFRAX® silicon carbide refractory and in one year eliminated 30 days downtime . . . In the walls of a retort, the high thermal conductivity of this same material made possible a new vertical redistillation process for the production of special high-grade zinc . . . In the floor of another furnace, CARBOFRAX refractories outlasted alloy parts 6 to 1. The examples are countless—as are the variety of materials applied.

Granted, Carborundum's refractories cost more. But they also *save* much more—in terms of refractory life . . . furnace downtime . . . and maintenance costs. They also *do* more—in terms of higher furnace output . . . faster heat transfer . . . and increased efficiency. In short, *we* wouldn't be in business if *you* couldn't cut costs with super refractories.

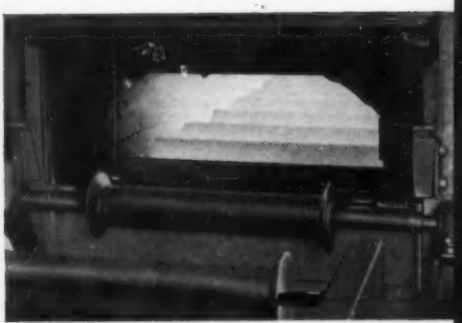
Here's how you can start cutting costs: It will take less than an hour to read these two booklets about the applications—**and properties**—of Carborundum's unique, new super refractories. Send for them today.

Subscription to "Refractories" is yours for the asking. This technical brochure is published approximately every other month; contains a wealth of information on new refractory materials, lining techniques, etc. Offer limited.

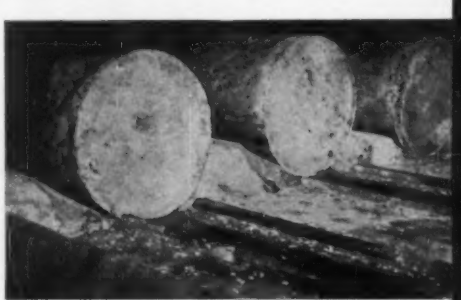
Refractories Division, The Carborundum Company, Perth Amboy, New Jersey, Dept. B88b.

CARBORUNDUM

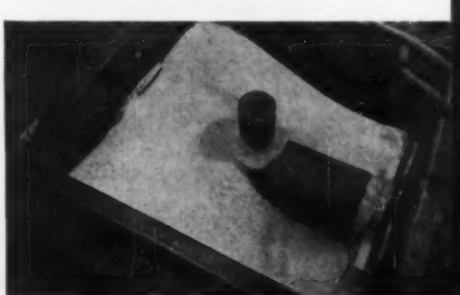
Registered Trade Mark



HEAT? Instead of using metal rollers, the manufacturer of this annealing furnace substituted a roller hearth made of one of Carborundum's special refractories. As a result, the hearth now stays straighter, lasts longer, and reduces marking and pick-up.



ABRASION? The skid rails supporting these billets were formerly alloy. They required complete replacement (plus constant maintenance) every 2–5 weeks. When replaced with Carborundum's silicon carbide refractory, they lasted 3 years—required no attention.



ATMOSPHERES? This furnace is heated to 3000°F by moly wire wrapped around the muffle. The muffle is made of our fused aluminum oxide—and insulated with our granular alumina "bubbles." These refractories have proved stable and durable—are not even affected by hydrogen or cracked-ammonia atmospheres.

How they built it better

with USS National Seamless

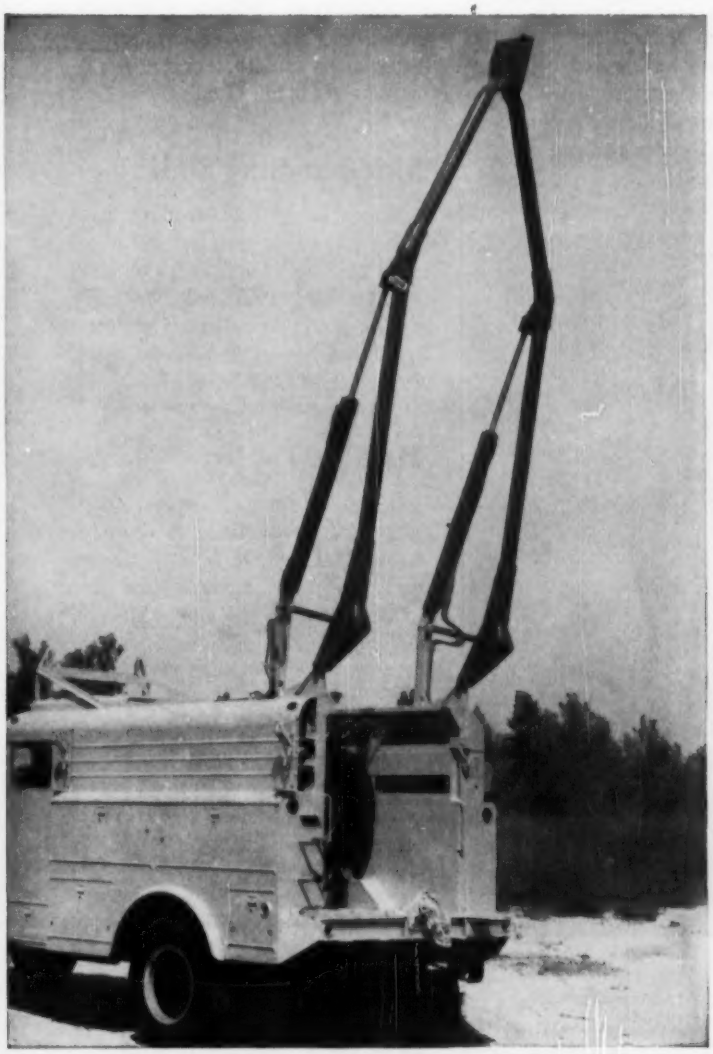
Drive-In Restaurant. This is one of a chain of Henry's self-service restaurants in the Chicago area. Built of steel, glass, tile and concrete, all of these buildings are identical in design. The unique feature is that every vertical supporting column in these buildings is fabricated* from sections of 4" x 8" Shelby Seamless Rectangular Steel Tubing. Four tons of this ¼" wall tubing were used in each restaurant. These columns of Shelby Seamless Tubing are consistent in quality and strength, and provide a handsome, uniform appearance.

Fabricator's name on request.

National Tube Division of USS United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • United States Steel Supply Division
United States Steel Export Company, New York

Pipe and Tubes



"Pole-Master"* Hydraulic Derrick. The powerful, two-legged boom of this hydraulic derrick is made of USS Shelby Seamless Mechanical Steel Tubing. The great strength, lightness, and shock absorbency of Shelby Seamless enables it to handle poles up to 75 feet in length with relative ease. The boom is activated by two hydraulic cylinders, also made of Shelby Seamless Tubing, which are powered by a heavy-duty hydraulic pump. Operating arc of the derrick is more than 180 degrees. It is designed to "set" or "pull" poles from the ground.

**Manufacturer's name on request.*

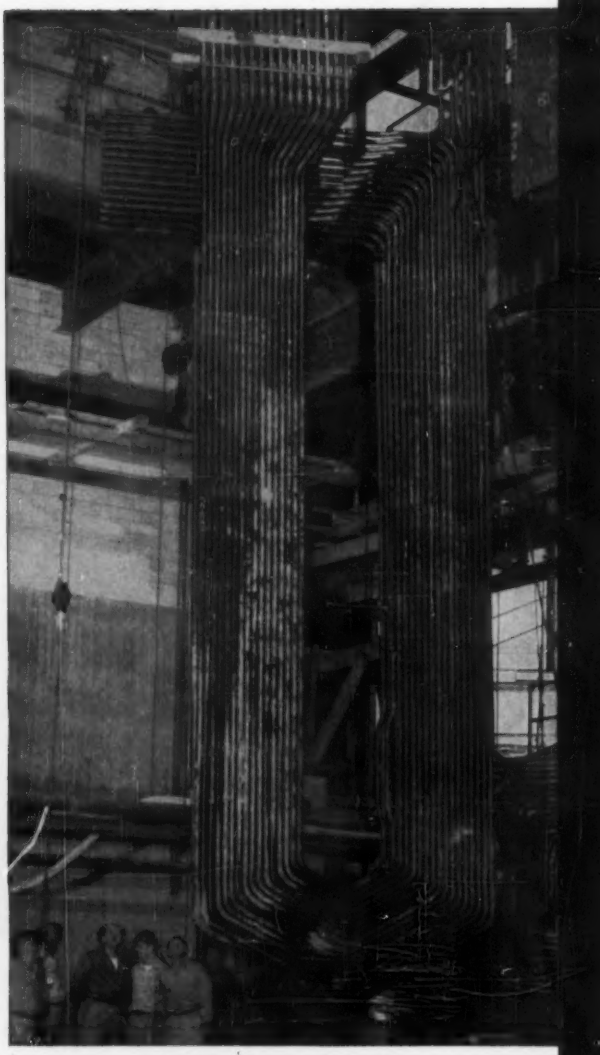


Photo: Courtesy Combustion Engineering, Inc.

Giant Superheater Coils. This king-size superheater coil being hoisted into position is only a small portion of the total USS National Seamless Steel Tubing installed recently in a huge modern boiler. Actually, *49 miles* of National Seamless Tubing were used. Here, steam at more than 2000 psi is superheated to 1000°F. In spite of this severe duty, it poses no problem for National Seamless, which is, in fact, built to withstand much higher pressures and temperatures. National Seamless Tubes have the strength, uniformity and dependability of solid forgings.

Perhaps USS National Seamless Pipe and Tubes are just the materials you've been looking for to cut costs, lighten weight, increase strength, shock-absorbency and workability in your product. Why not get in touch with us and find out? Write to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa. Or, for Shelby Seamless Tubing, contact your nearest Shelby Distributor.

USS, National, and Shelby are registered trademarks

FREE LITERATURE

bulletin. Two types (one for welders) are shown. Goggles have soft vinyl frames. They afford good ventilation, wearing comfort, protection, and broad vision. (Mine Safety Appliances Co.)

For free copy circle No. 10 on postcard, p. 75

Blower-Compressor

An axial flow blower/compressor for pressure, vacuum or combination service is described in a 4-page brochure. (U. S. Hoffman Machinery Corp.)

For free copy circle No. 11 on postcard, p. 75

Protective Atmosphere

Ammonia dissociators mentioned in a bulletin have rated capacities to 5000 cfh (larger on special applications). These make comparatively cheap hydrogen - nitrogen atmospheres. Atmospheres are extremely pure (99.96 pct association) with very low dew points. (C. I. Hayes, Inc.)

For free copy circle No. 12 on postcard, p. 75

Motors

All-weather motors are introduced in a bulletin. These vertical, hollow shaft motors come in ratings to 2000 hp. (Louis Allis Co.)

For free copy circle No. 13 on postcard, p. 75

Side-handling Unit

Remarkable side - loading handling units are featured in an 8-page bulletin. Capacities run 4000 to 30,000 lb. These units stack like a fork truck, carry like a platform truck and deliver like a road truck. (Baker Industrial Trucks.)

For free copy circle No. 14 on postcard, p. 75

Flexible Tubing

Flexible tubing, hose and couplings are featured in a 36-page booklet. It explains how "flexineering" can save money, time and labor. (Penna. Flexible Metallic Tubing Co.)

For free copy circle No. 15 on postcard, p. 75

Molding Powders

Heat-resistant, phenolic molding powders are described in a brochure. (Chemical Materials Dept., General Electric Co.)

For free copy circle No. 16 on postcard, p. 75

Dial Indicators

A 12-page catalog deals with dial indicators. (Petz-Emery, Inc.)

For free copy circle No. 17 on postcard, p. 75

Finishing

An 8-page technical bulletin talks about burring compounds. Also covered: buffing, polishing, lapping, other finishing methods. (Lea Mfg. Co.)

For free copy circle No. 18 on postcard, p. 75

Sealing Rings

Metallic sealing rings appear in a brochure. These rings withstand high temperatures and pressures. They keep leakage down. (Koppers Co.)

For free copy circle No. 19 on postcard, p. 75

ERIE Bolts • Studs • Cap Screws • Nuts
In Alloys • Stainless • Carbon • Bronze

Sharp eyes, made sharper by scientific instruments, verify microscopic details of thread accuracy at Erie Bolt & Nut Company. This is but one proof of the painstaking craftsmanship your own fastener specifications receive from the hands of Erie specialists. Fasteners to resist corrosion, extremes in temperature and tensile stresses to your specifications have been our exclusive job for almost half a century.
Send us your specifications for prompt estimate.

Subsidiary of
RIC
REPUBLIC INDUSTRIAL CORPORATION

ERIE BOLT & NUT CO.
Erie, Pennsylvania
Representatives In Principal Cities

New Athey PW20 dump trailer built 11,000 pounds lighter with USS "T-1" Steel; has lower operating costs and new 3rd (or rear) door design.

Hauls payload over 3½ times its own weight!

—built entirely from USS "T-1" Steel

This new Athey Bottom Dump Trailer is unique. It weighs only 22,500 pounds but has a payload capacity over 3½ times as great: 80,000 pounds. According to the manufacturer, this high ratio of payload to weight is unequaled by any similar equipment.

Trailer weight reduced by 11,000 pounds. That's a lot of weight to take out of a trailer, but the job was done by using USS "T-1"* Steel throughout. This steel has high impact abrasion resistance and nearly three times the yield strength of structural carbon steel. This permitted reduction in plate thicknesses and a weight saving of 11,000 pounds. There was no sacrifice of strength or ability to take punishment.

Ready weldability. The trailer is all-welded, and the USS "T-1" Steel retains its superior strength and toughness after welding—at temperatures even down to 50 below zero. Thus, all parts of the body including the drawbar can be welded without loss of strength.

Build better with USS "T-1" Steel. No other steel possesses the remarkable combination of high yield strength (90,000 psi), toughness and weldability found in USS "T-1" Steel. When you also consider the high resistance to impact abrasion, you have a steel that will save money on construction and mining equipment. For more information, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

Remember that we also make USS COR-TEN*, USS TRI-TEN* *and* USS MAN-TEN* *Steels . . . standards for heavy-duty equipment.* *Registered trademarks.

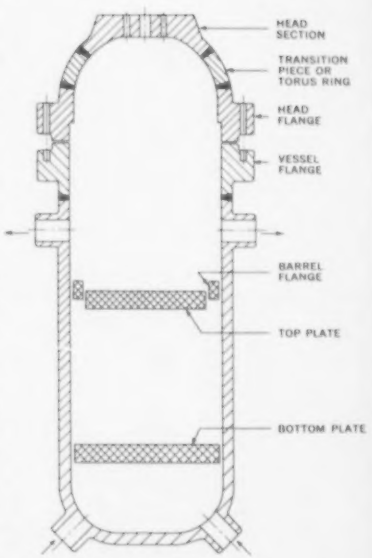
United States Steel Corporation – Pittsburgh
Columbia-Geneva Steel – San Francisco
Tennessee Coal & Iron – Fairfield, Alabama
United States Steel Supply – Steel Service Centers
United States Steel Export Company

USS United States Steel

Critical-service reactor forgings "routine" at United States Steel

This closure-head forging for a nuclear reactor shell is a good example of how all United States Steel products are made to the tip-top edge of perfection.The reactor operates at very high pressure and is intensely radioactive. More than that, the entire shell, with its eight- to ten-inch-thick steel walls, is welded into a single, sealed unit. Can you imagine the prohibitive cost of replacing or repairing or even *examining* a forging that is in this type of service?

The small drawing shows a typical reactor vessel. "As-forged" diameters of the flange and transition forgings go up to 145 inches. They may be 30 to 50 inches thick, weighing up to 150,000 pounds in the rough. Head pieces, like the one in the big color picture, go up to 96 inches in diameter, 36 inches thick, 87,000 pounds.



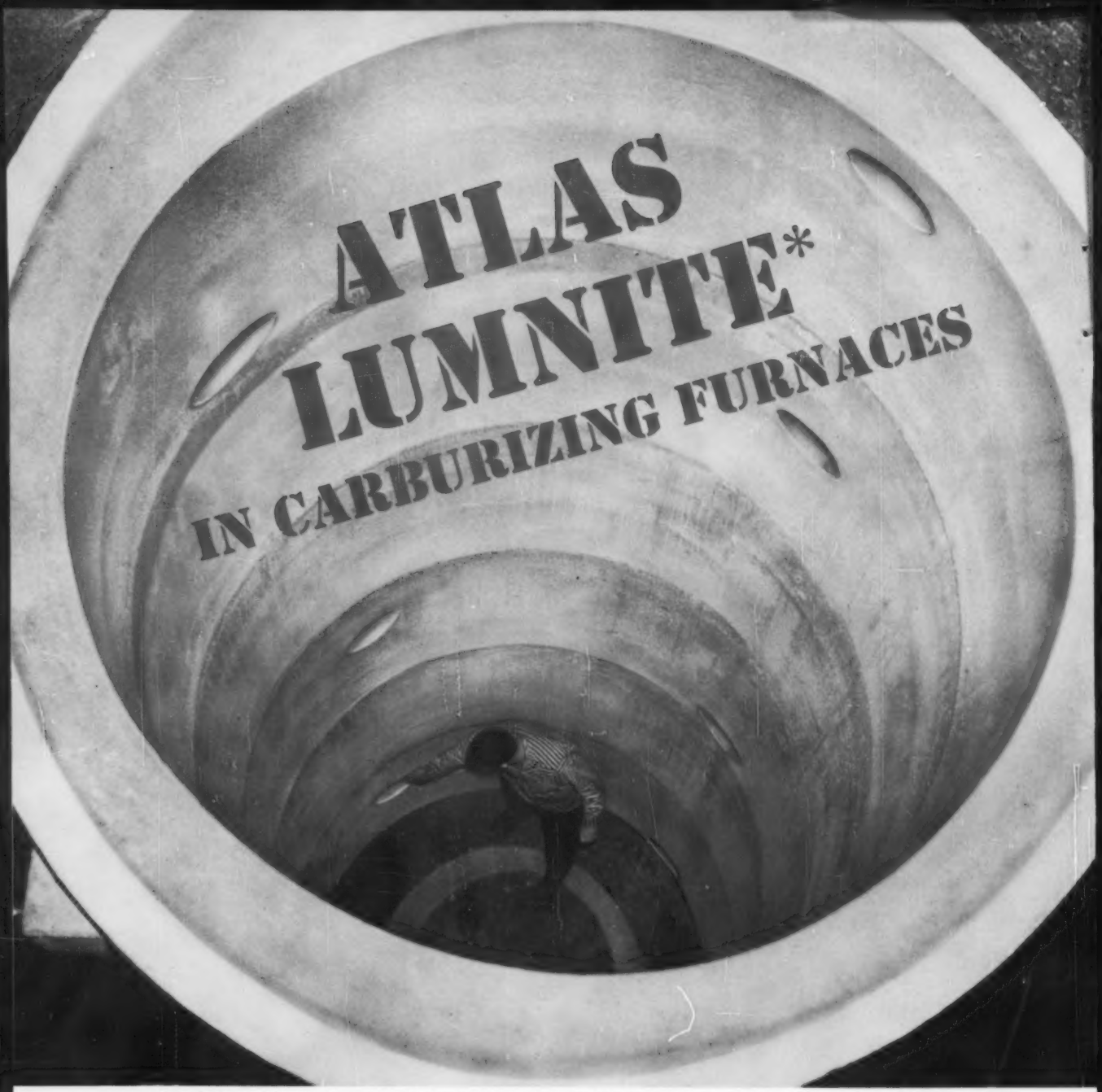
To make these mammoth forgings, we teem manganese-nickel-molybdenum killed steel ingots that may weigh a quarter-million pounds. The ingots are cogged, upset, punched and mandrel-forged (in the case of ring forgings) and are annealed, double normalized, and double tempered—a process that may take as long as 700 hours. Then comes the rough machining on vertical boring mills, and quench and temper heat treatment. Inspection procedures are elaborate: ultrasonic inspection, magnetic particle inspection, plus tangential tensile, Charpy V notch impact, grain size and bend tests.

It's no surprise that so many builders of nuclear equipment specify and depend on USS Quality Forgings. The men of our Homestead Forgings Division who produce these parts have had a great deal of experience turning out equally critical forgings, such as the perfectly balanced shafts for steam turbines and generators. Critical work like this is routine, and perfection is a habit for the men who make USS Quality Forgings.

You get this same quality in *any* forging you order, because the same crew of highly skilled men work on every order, using the same steelmaking facilities and the same shop equipment. If you specify a USS Quality Forging, you can be sure that money won't buy anything better. We'd appreciate your inquiries or requests for our free 32-page booklet on USS Quality Forgings. Write to United States Steel, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

USS is a registered trademark

USS United States Steel



Vertical pit-type carburizing furnace (9' x 24') lined with an insulating castable refractory made with LUMNITE cement. Operating temperature to 1800° F. Badall Engineering & Manufacturing Co., Hammond, Ind. Castable used: "Kast-O-Lite," product of A. P. Green Fire Brick Co., Mexico, Mo.

"...withstands thermal shock...reduces heat loss,"

says Fred F. Badalli, Badall Engineering & Manufacturing Co.

- Refractory concrete linings (made with LUMNITE calcium-aluminate cement and selected aggregates) resist furnace temperatures to 2600° F . . . protect against thermal shock due to heating-cooling cycles . . . provide insulation.
- Construction is fast, easy, economical. Linings can be cast in place, troweled or "gunited" . . . service strength is reached in 24 hours.

For maximum convenience, use castables made with LUMNITE cement. These are packaged mixtures, ready for use. Just add water, mix and place. Made and distributed by leading manufacturers of refractories.

For literature on refractory concrete, write:
Universal Atlas, 100 Park Avenue, New York 17, N. Y.

*"LUMNITE" *is the registered trade-mark of the calcium-aluminate cement manufactured by Universal Atlas*

UNIVERSAL ATLAS CEMENTS

Universal Atlas Cement
Division of United States Steel

USS TRADE MARK

L-166

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

FREE LITERATURE

Continued

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

Vises

Machinists vises are subjects of a 16-page catalog. One page compares models with vises of other makers. (Desmond Stephan Mfg. Co.)

For free copy circle No. 20 on postcard

Gas Engines

Three bulletins detail a line of 4-cycle, V-angle gas engines. Horsepowers range from 220 to 1760. (Ingersoll-Rand Co.)

For free copy circle No. 21 on postcard

Tractor-Scrapers

Actual job reports include production and cost data for crawler type tractor-scrapers. Reports run 12 pages. (Caterpillar Tractor Co.)

For free copy circle No. 22 on postcard

Polisher, Buffer

Data in a 4-page folder describes an automatic polishing and buffing machine. (Murray Way Corp.)

For free copy circle No. 23 on postcard

Heat Exchangers

Flexible and fully standardized, new heat exchangers handle any combination of liquids and gases. For use as heaters, coolers, condensers or vaporizers, they're described in a bulletin. (Ross Heat Exchanger Div.)

For free copy circle No. 24 on postcard

Copying Unit

Diazotype reproduction of drawings, etc. is discussed in a 12-page booklet. It explains various types of direct-positive prints possible. These include black-line or color-line prints on white or tinted stock; multi-color films for projection and overlays; translucent duplicate originals; dimensionally stable film and glass cloth prints; and reflex prints on translucent film. (Chas. Bruning Co., Inc.)

For free copy circle No. 25 on postcard

Magnetic Equipment

Uses of permanent, non-electric magnetism in materials handling and separation appear in a 48-page booklet. (Eriez Mfg. Co.)

For free copy circle No. 26 on postcard

Liquid Shipping

New packaging ideas for shipping liquids are contained in a technical report. It tells how polyethylene bottles and corrugated boxes team-up for lightweight, easy handling. Eliminating breakage and set-up cost savings are other assets. (Hinde & Dauch.)

For free copy circle No. 27 on postcard

Magnet Clutches

Magnetic clutches and brakes are subjects of an 8-page bulletin. It tells how and where these electrically-operated units are used. (Fawick Corp.)

For free copy circle No. 28 on postcard

Fabricating

A Midwestern fabricator of plate and sheet metal is offering a new catalog. It covers the firm's fabricating operations. (Littleford Bros., Inc.)

For free copy circle No. 29 on postcard

Grinding Wheels

Surface grinding wheels are presented in a booklet. It describes straight sided wheels, segments, cylinders, cups, and nut inserted wheels. (Cincinnati Milling Machine Co.)

For free copy circle No. 30 on postcard

Hydrogen Furnace

Teaming a full muffle, hydrogen

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. 8/28/58

Circle numbers for Free Technical Literature or Information on New Equipment:

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No postage necessary if mailed in the United States

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FREE LITERATURE

atmosphere furnace with an ammonia dissociator is described in a bulletin. (Eclipse Fuel Engineering Co.)

For free copy circle No. 31 on postcard

Ultrasonic Cleaning

Ultrasonic cleaning is studied in a 24-page bulletin. It explains applications and principles of this cleaning method. (Branson Ultrasonic Corp.)

For free copy circle No. 32 on postcard

Tractor

Four years of improvement to track-type tractors are illustrated in a brochure. (Caterpillar Tractor Co.)

For free copy circle No. 33 on postcard

Coatings

Plastic coatings, sealants, adhesives, and pastes are reviewed in a 4-page folder. The epoxy, polyurethane, furane resins, and their curing agents, are covered. (Furane Plastics, Inc.)

For free copy circle No. 34 on postcard

Data Processing

A 4-page bulletin describes a data processing system. (Beckman Systems Div.)

For free copy circle No. 35 on postcard

Clamps

Hydraulic rail clamps for unloading bridges and towers are featured in an 8-page brochure. Capacities run to 100 tons. (Mead-Morrison Div., McKiernan-Terry Corp.)

For free copy circle No. 36 on postcard

Heat Treating

Unique features are incorporated into a heat-treat furnace design. A bulletin describes the vacuum furnace. (C. I. Hayes, Inc.)

For free copy circle No. 37 on postcard

Chucks

Manually-operated pinch jaw chucks covered in a bulletin can reduce setup time. They do away with jigs and fixtures in machining parts of large diameter and small cross section. (Cushman Chuck Co.)

For free copy circle No. 38 on postcard

Valves

Two types of forged steel gate valves are featured in a circular. One has screw ends; the other, socket welding ends. Each comes in sizes ½ to 2 in., rated 800 lb at 850° and 2000 lb at 100°F. (Lunkenheimer Co.)

For free copy circle No. 39 on postcard

Wire Rope

Service life of wire rope can be extended by eliminating localized wear and damage. So states a 4-page bulletin. It tells how. (Leschen Wire Rope Div.)

For free copy circle No. 40 on postcard

Recorder, Controller

Twelve types of receivers, controllers, retransmitters, and direct measuring devices are featured in a 16-page bulletin. It tells how a recorder can be custom-built from these. (Bailey Meter Co.)

For free copy circle No. 41 on postcard

Fluid Power

Hydraulic cylinders are dealt with in a 32-page booklet. It describes new hydraulic cylinders for 500 to 5000 psi service. Also included is some useful academic cylinder data. (Miller Fluid Power Div.)

For free copy circle No. 42 on postcard

Flexible Handling

A noteworthy materials handling system meets ever-changing in-plant operations. It's illustrated in a case history report. (Elwell-Parker Electric Co.)

For free copy circle No. 43 on postcard

Handling

Heavy-duty material carriers are outlined in a folder. Its six pages relate design, construction and operating features. Twelve models have capacities from 12,000 to 60,000 lb. (Towmotor Corp.)

For free copy circle No. 44 on postcard

This jewelry chain of **COPPERPLY®** wire might give you a gem of an idea!

• Copperply wire, a National-Standard development, is a steel wire, electroplated with copper to required thickness and with unmatched coating uniformity and concentricity.

It makes sense for jewelry chain manufacturers to use Copperply wire instead of copper or brass wire, because material costs are greatly reduced. It also provides an ideal base for plating if desired, it excells in strength, and provides more footage per pound with resultant production and handling economies.

To date other uses in light coating weights include: wrapping for piano wires, reinforcement for eyeglass temples, decorative tinsel, fanning mill cloth, and springs where a combination of power and electrical conductivity is needed. A major use in heavy coating weights is in the field of communications.

Here we touch only briefly on a few of the unique Copperply features, but perhaps enough to spark an idea worth exploring. And you'll find that the word "cooperation" has real meaning at National-Standard . . . whether your interest lies in Copperply wire or any of our other products. Try us.

NATIONAL NS NATIONAL-STANDARD **STANDARD**

DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; *fine wire, stainless, music spring and plated wires* • WORCESTER WIRE WORKS, Worcester, Mass.; *music spring, stainless and plated wires, high and low carbon specialties*
WAGNER LITHO MACHINERY, Secaucus, N. J.; *metal decorating equipment* • ATHENIA STEEL, Clifton, N. J.; *flat, high carbon spring steels* • REYNOLDS WIRE, Dixon, Ill.; *industrial wire cloth*

NEW BOOKS

"Brittle Behavior of Engineering Structures" should be read by designers and builders of (1) a seagoing tanker which cracked in half during World War II, (2) a new bridge which fell into a river in recent weeks, and (3) an offshore oil platform which tipped over on its side. For this is a complete work on engineering failure and how to prevent it. Though packed with data, it makes the reader hunger for more. This is a good thing, too; it spurs future research into structural failure problems which can take a million dollar, six-month job and ruin it in minutes. 323 pp. $6 per copy. John Wiley & Sons, 440 4th Ave., New York 16.

"ASTM Standards on Light Metals & Alloys" contains 310 pages. $3.75 per copy ($3 for members). American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa.

"Copper Through the Ages" traces history of this metal from ancient times to now. 66 pp. Copper Development Assn., 55 South Audley St., London W.1., England.

"Reporting Financial Data to Top Management" stresses importance of speeding data from bottom to top. 192 pp. $5.25 per copy ($3.50 to members). American Management Assn., 1515 Broadway, New York 36.

"Constitution of Binary Alloys" by Max Hansen and Kurt Anderko is a second edition. It gives data on the constitution of binary alloy systems (phase diagrams) and the crystal structure of metallic phases. Widely scattered information in the world's metallurgical, physical, chemical, and crystallographical literature is analyzed and critically evaluated. To call the book comprehensive would be an understatement. 1305 pp. $32.50 per copy. McGraw-Hill Book Co., 330 W. 42nd St., New York 36.

KUTZTOWN Skill

creates an AMMONIA STILL . . .

with an overall diameter of seven feet, six inches.

For many years the Kutztown Foundry & Machine Corporation has produced castings used in evaporation, distillation and decomposition operations and allied processes . . . castings produced in materials capable of handling liquids under pressure and heat . . . that are thoroughly sound, able to withstand severe hydrostatic tests . . . castings with long and excellent performance records!

Whatever your requirements in castings may be, you will find our services more than adequate.

YOUR INQUIRY IS MOST WELCOME!

We'll be happy to place your name on our mailing list to receive regular issues of the "Kutztown REVIEW."

KUTZTOWN FOUNDRY & MACHINE CORP.
KUTZTOWN, PENNSYLVANIA

A. J. BOYNTON AND CO.
CONSULTING ENGINEERS
109 N. Wabash Ave., Chicago 2, Ill.

MUNDT
PERFORATED METALS

The few perforations illustrated are indicative of the wide variety of our line—we can perforate almost any size perforation in any kind of metal or material required. Send us your specifications.

Sixty-seven years of manufacturing perforated metals for every conceivable purpose assure satisfaction.

Write for New Catalog of Patterns

TIN, STEEL, COPPER, ALUMINUM, BRONZE, BRASS, ZINC, ANY METAL, ANY PURPOSE

CHARLES MUNDT & SONS
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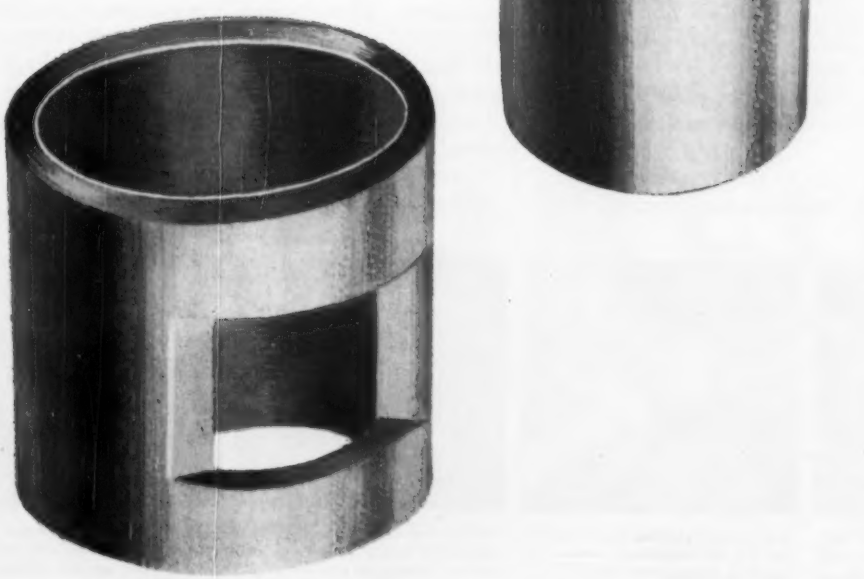


ASARCO

AMERICAN SMELTING AND REFINING COMPANY

Republic ELECTRUNITE Mechanical Tubing is used in four locations across the top of the automatic apparatus that picks up and sets the bowling pins in place. The AMF Automatic Pinspotter is manufactured by the American Machine & Foundry Company, Brooklyn, New York.

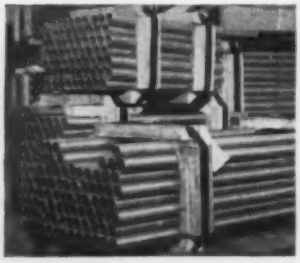
AMF . . . builds a better pinspotter for better bowling with Republic ELECTRUNITE Mechanical Tubing

On the initial order, Republic ELECTRUNITE® Mechanical Tubing saved American Machine & Foundry Company $34,000 in manufacturing their famous AMF Automatic Pinspotter.

AMF had been using tubing that required a boring operation on each end of the tube and centerless grinding on the O.D.

Because Republic's ELECTRUNITE Mechanical Tubing met AMF's O.D. tolerance requirements, the company was able to eliminate the boring and grinding operations. This resulted in a savings of $15,000 in fabricating operations. Another $19,000 was saved on the cost of ELECTRUNITE as compared with the tubing used previously.

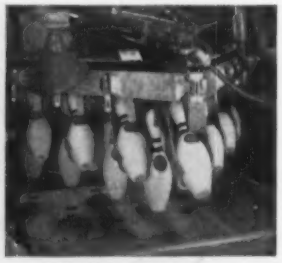
In uniformity and quality, in fabricating, in original costs, Republic's ELECTRUNITE Mechanical Tubing can save you time and money, too! Call your Republic representative, or write today.



Republic ELECTRUNITE Mechanical Tubing is delivered, cut to length, ready for fabricating. ELECTRUNITE Tubing is "electrically welded" resulting in built-in uniformity.

Slots to hold spotting cups in place are cut into ELECTRUNITE Tubing by machine. Concentricity of the ELECTRUNITE assures easy fabrication and smooth mechanical operation.

Drilling and cutting complete, the ELECTRUNITE Tubing is ready for assembly. Lightweight ELECTRUNITE offers uniform wall thickness, strength, ductility for greater serviceability.



Sensitivity in setting off-spot pins is the result of design and engineering, highest quality workmanship, and highest quality materials, such as Republic's ELECTRUNITE Tubing.

REPUBLIC NYLOK® FASTENERS SAFEGUARD PERFORMANCE SPECIFICATIONS. Republic fasteners are used extensively on Gemco Rotary, Reel, and Riding Power Lawn Mowers. Inset shows blade assembly securely locked to engine shaft with Nylok Cap Screw. An added advantage of Republic Nylok Bolts and Cap Screws is their ability to seal against fluid escape when wrenched tight. Nylon pellet in bolt body blocks flow of fluid along helical threaded path. Send for data.

REPUBLIC MANUFACTURERS' COARSE WIRE to meet every production need. Box Binding and Stapling, Brush Handle, Chain, Garment Hanger are only a few of the qualities regularly produced. Large tonnages are shipped to manufacturers of fan guards, wire partitions, concrete reinforcing specialties, plated shelves, racks and grilles, and numerous other products. Republic wire metallurgists are available to help you in solving production problems. Write today.

REPUBLIC HIGH STRENGTH STEEL IMPROVES SERVICE LIFE for many types of equipment. In the bottom of this conveyor, for example, it provides excellent resistance to abrasion and corrosion. Far less frequent replacement is required as compared with a bottom made of ordinary steel. And, its high strength-to-weight ratio allows use of lighter gages. Send for details.

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New Production Ideas

Equipment, Methods and Services

Design Profiler for 3-D Numerical Control

Especially designed for numerical controls, this unit three-dimensionally machines around the axis of a workpiece. Equipped for milling and grinding, the automated machine incorporates grinding, dressing and dressing compensation without using cams or special tooling. It machines parts having irregular and twisted forms. All machining instructions are on tape. Length of time necessary to make the tape depends on part complexity. Of the first two machines built, one turns out steam turbine buckets in small lots. It handles buckets to 60-in. long and 11-in. wide. The other machine produces jet engine cams, templates and prototype blades. Users say it cuts the cost of making prototypes and small lots of parts that were hard to machine without special tooling. (Ex-Cell-O Corp.)

For more data circle No. 45 on postcard, p. 75

Engine Driven Welding Units Are Air Cooled

New drooping-voltage arc welders are now available. They come in three types: 250-amp dc, 300-amp ac/dc, and 300-amp ac/dc Heliwelder. All machines provide 115/230-v, 10-kw, single phase, 60-cycle power when operating as power plants. They have 115-v, 1-kw dc auxiliary power available for running lights and power tools while welding. The 250-am dc machine handles general purpose construction and maintenance work in the field. Its maker recommends it especially for pipework. The 300-amp ac/dc unit is a remote area welder and power plant for ac welding and dc reverse or dc straight polarity welding current. The 300-amp ac/dc Heliwelder is for field welding of aluminum or magnesium structures. Automatic inert gas control is standard on the latter model. All use Hercules-Lycoming engines. (Air Reduction Sales Co.)

For more data circle No. 46 on postcard, p. 75

Fork Truck Magnet Attachment Upends Coils

Huge tinplate coils weighing 10 tons and more can now be moved easily and swiftly in strip mills. Making this possible is a new magnetic coil upended attachment. It adapts to a line of regular heavy-duty electric fork trucks. The attachment reduces coil damage since clamps aren't needed to hold the coil in transit. Principal parts of the attachment include a rubber-covered load ram and a powerful electro-magnet. The ram projects from the magnet's center. These mount on a 45° rotator head. The rotator turns the coil to either a vertical or horizontal position. Engineered for safety, the unit eliminates possible human errors; the ram locks in the horizontal position when carrying a load; it can turn to vertical only when the magnet is energized. (Automatic Transportation Co.)

For more data circle No. 47 on postcard, p. 75

INTRODUCING!

New Hamilton open-back inclinable presses

Special features of Hamilton OBI Presses include stress-relieved welded steel design — lowers deflection so that up to 50% more stampings can be produced before dies require regrinding; disc-type air clutch, mounted on the crankshaft, to permit low-inertia starting with reduced heat generation; special air-released, spring-actuated brake for maximum efficiency and production speed with low heat loss; extreme stability and wearing qualities made possible by a wrist pin and crosshead type connection.

Write to Dept. 2-H for Bulletin 13302

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Molded-case Circuit Breakers Fit Tight Spaces

Two new molded-case circuit breakers provide 225 and 400-amp continuous current ratings in two-thirds the space formerly required. Available in both two and three pole models, the units provide interrupting ratings of 25,000 amp at 600-v ac. Approved by Underwriters Laboratories, the breakers feature new interchangeable thermal-magnetic trip elements. These can be set at five different instantaneous trip valves. They may be adjusted easily from the front panel after breaker installation. A unique front-removal lug design assures fast, simple interchange of trip units after the breaker has been installed. The breakers are quick-make-and-break and trip-free. All poles open simultaneously through common trip action when overload occurs on any one pole. A three-position handle indicates if the breaker is on, off or tripped. All terminals are completely enclosed as a safety factor. (I-T-E Circuit Breaker Co.)

For more data circle No. 48 on postcard, p. 75

Lightweight Radios Aid Plant Communication

Tiny in size and very lightweight, a new two-way radio speeds messages from management to field, or between any other two persons. Now under field tests, this completely transistorized radio is almost one-half smaller than any of its maker's older two-way radios. Compact and ruggedly built, it uses more than 20 transistors, has printed circuits, modules and diecast construction. The entire unit is but 3-in. high, 11-in. wide, 17-in. long. What's more, transistors give it a slight 1.82-amp power draw while on standby (i.e., turned on waiting to hear a message, a condition usually in effect 99 pct of the time.) Transistors really help here since receiver tubes draw the most power in conventional sets. Thus, the new unit has long battery life. Both transmitter-receiver sets are highly portable, one easily can be carried by a man on foot. (Motorola, Inc.)

For more data circle No. 49 on postcard, p. 75

Incoloy Stack Baskets Fit Surface Furnaces

Incoloy stack baskets, specially designed for surface furnaces, provide up to eight compartments for treatment of small parts during heat-treating operations. The baskets have separate compartments for different parts. Job shops can use them to keep customers' jobs apart. Fitted with special stacking lugs, the baskets can be placed in two stacks of four into a typical Ipsen furnace. Measurements of each basket are 16½ x 21½ x 4-in. deep, with a framework of ½-in. diam rods. Mesh is No. 4 weave made of 0.080-in. wire. Stacking lugs are 1 x 1 x ⅓-in. angle. Baskets are made of Incoloy for long life and high temperature resistance. However, they can come in other metals. (Wiretex Mfg. Co.)

For more data circle No. 50 on postcard, p. 75

Unique Hacksaw's Blades Change Quickly

Flip a lever on a new hack saw frame and you're ready to change blades in seconds. Awkward wing nuts, two piece locks, etc., are eliminated. The frame itself is a rugged, one piece steel design with a high impact plastic handle. It takes a 12-in. blade and is only 15-in. over-all. (G. W. Griffin Co.)

For more data circle No. 51 on postcard, p. 75

Correct fastener selection can keep costs down! You may be using a "special" fastener where a "standard" – at less cost – is available to do the same job. These savings may be considerable, particularly on production line products. How do you know when a "standard" will do just as well or even better? Just ask your nearest Lamson & Sessions salesman. They have all the information at their finger-tips... or can get it fast. There's almost a hundred years worth of fastener information in Lamson's files. The answer to your fastener problem is ready and waiting for you!

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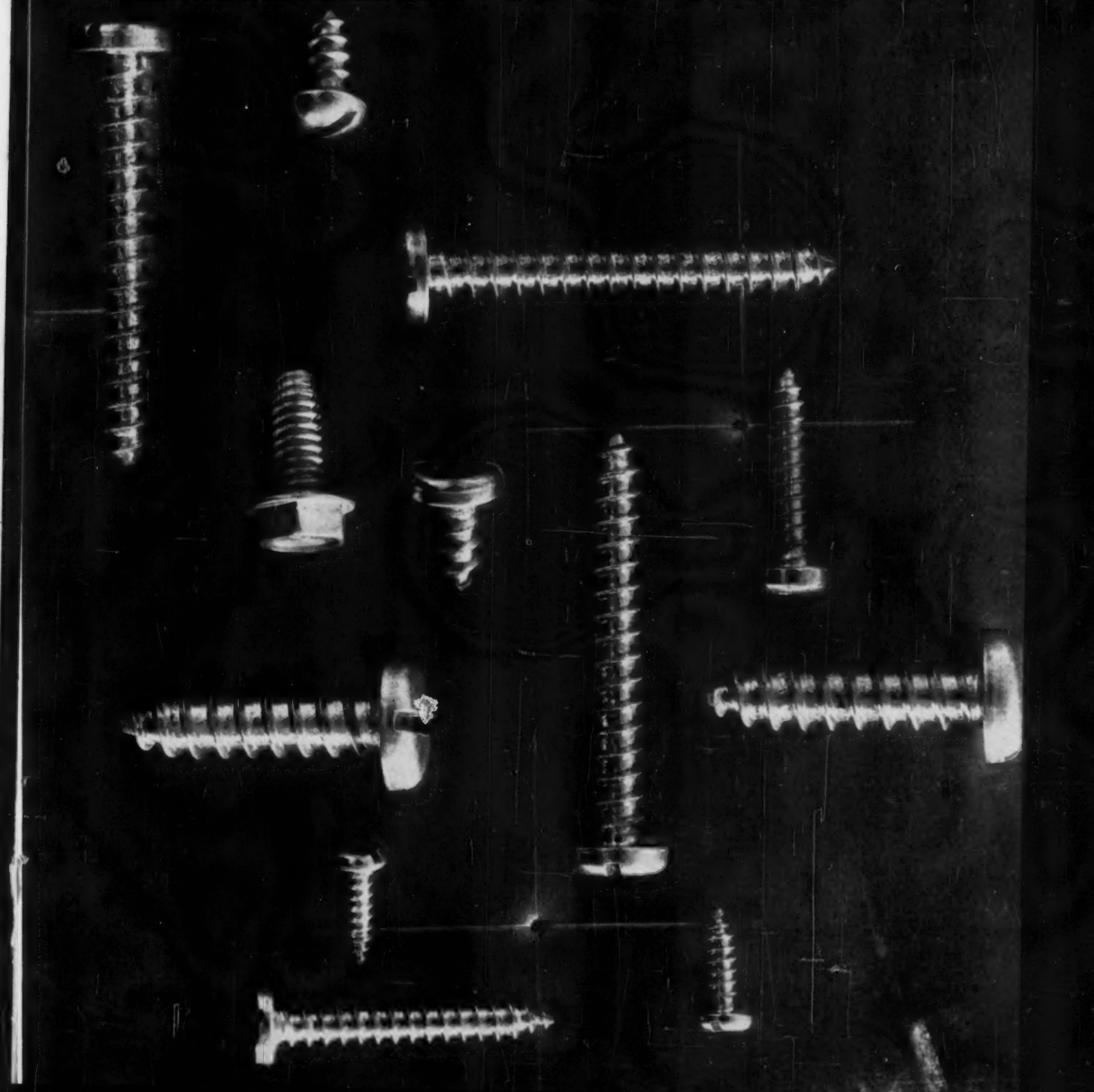

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The Iron Age Summary

Fall Pickup Better Than Expected

Orders for many products are running ahead of production. This means lengthening delivery dates.

Auto labor stalemate is giving steel the jitters. Orders are slow while standoff exists.

▪ The fall pickup in steel orders is moving ahead faster than generally expected.

Orders for a wide range of products are now running ahead of actual production at many mills. This means higher operating rates and lengthening delivery promises as new orders come in.

Higher Operating Rate — Steel operating rates should reach the high 70's within the next 40 days on the basis of the current market tone.

Most of the August and September gains in orders have come without support from the auto industry. But orders for October delivery are now coming in from automakers. If auto labor negotiations are concluded without a strike, October shapes up as possibly the best month of the year.

Auto Labor Jitters—With automakers waging a "no contract" war of nerves with the United Auto Workers, October orders from the auto industry are still following conservative trends. Peak orders are not being placed, and delivery requests are not far out, as yet.

Steel people are beginning to share Detroit's labor jitters, from two standpoints:

1. Even a short auto strike could block the orderly recovery of the steel market.

2. If auto labor troubles are settled peacefully, automotive orders will flood steel sales offices.

Steelmakers will have to react by allocating their ingots on a tighter schedule and by extending deliveries.

Inventory Rebuilding — Also active in helping lift the market are the construction and appliance industries, which are also upping their orders.

The end of inventory control in the major industries is also being felt. Steel sales people can see it in the kind of orders being placed; standard bar sizes that were missing for months, for example, are now coming in as manufacturers balance out their steel stocks.

But in spite of the threat of lengthening delivery dates, many consumers are not looking forward and are ordering on the basis of immediate sales and counting on spot delivery. If the auto labor stalemate breaks, immediate delivery will be a thing of the past.

Sales Performance Pays Off — One aspect of the changing market is that the overall improvement is not being felt equally among all producers.

A study of the comeback trends shows that past performance is paying off. Close personal service on production problems, fast delivery, better mill stocks, and top level attention to the customer are now being reflected in rate of order improvement.

Steel Output, Operating Rates

	This Week	Last Week	Month Ago	Year Ago
Production (Net tons, 000 omitted)	1,728	1,701	1,566	2,112
Ingot Index (1947-1949=100)	106.5	104.8	97.4	131.5
Operating Rates				
Chicago	75.0	76.0*	66.0	83.0
Pittsburgh	56.0	54.5*	48.5	84.0
Philadelphia	74.0	71.5	66.0	91.0
Valley	48.5	49.0	46.5	74.0
West	79.0	72.5*	67.0	100.0
Cleveland	53.0	53.0	66.0	89.0
Buffalo	46.0	46.0	39.0	98.0
Detroit	67.0	69.0*	64.5	88.0
South	53.5	52.0	52.0	85.0
South Ohio River	77.0	72.0	42.0	87.0
Upper Ohio River	82.0	82.5*	77.0	94.0
St. Louis	82.0	74.0*	89.0	77.0
Aggregate	64.0	63.0	58.0	82.5

*Revised

Prices At a Glance

(cents per lb unless otherwise noted)	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	6.188	6.188	5.967	5.967
Pig Iron (Gross ton)	$66.49	$66.49	$66.49	$66.42
Scrap, No. 1 hvy (Gross Ton)	$42.50	$41.83	$40.83	$51.50
No. 2 bundles	$29.50	$29.50	$29.50	$41.67
Nonferrous				
Aluminum ingot	26.80	26.80	26.10	28.10
Copper, electrolytic	26.50	26.50	26.50	28.50
Lead, St. Louis	10.80	10.80	10.80	13.80
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin Straits, N. Y.	94.75	94.25*	95.50	93.50
Zinc, E. St. Louis	10.00	10.00	10.00	10.00

Costs Will Push Press Prices Up

Cost pressure will probably bring an advance in press prices in next 60-90 days.

But, unlike some price increases in January which didn't stick, the new batch will be for keeps.

▪ It's less a question of whether press prices will advance, than when. It's a fact that some press builders have been strengthening their estimating departments. Partly because of a gain in inquiries. But partly because they are watching estimated costs on new work more closely than at any time since March.

It all points to the same wave of price tightening that occurred in the early part of this year. The difference is this: If current trends continue, there will be no softening of prices at a later date. This one is for keeps.

Cost Pressure Mounts — Prices did rise very briefly in January at a few points, wavered, and went soft again until June. Now, hit by increased steel costs and a wave of new labor contracts press builders are deciding just how much of the cost increases they can absorb. It's a cinch that if the very mild sales gain scored during July and August continues, there will be a tightening on pricing by press producers in the next 60-90 days.

Inquiries Increase — Press and press brake inquiries are running strongly. But since June an increasing number of manufacturers have reported that the number of inquiries they are converting into sales is up.

Part of the slight gain of the past 60 days is due to ordering by purchasers who want to get a quote before press prices go up. The same thing happened in January. Press business rose slightly as buyers moved to get their orders on the books.

Off-the-shelf items, one of the first to revive in early 1958, began showing more life again in June and July. Several press brake models are now again on 6-8 week delivery.

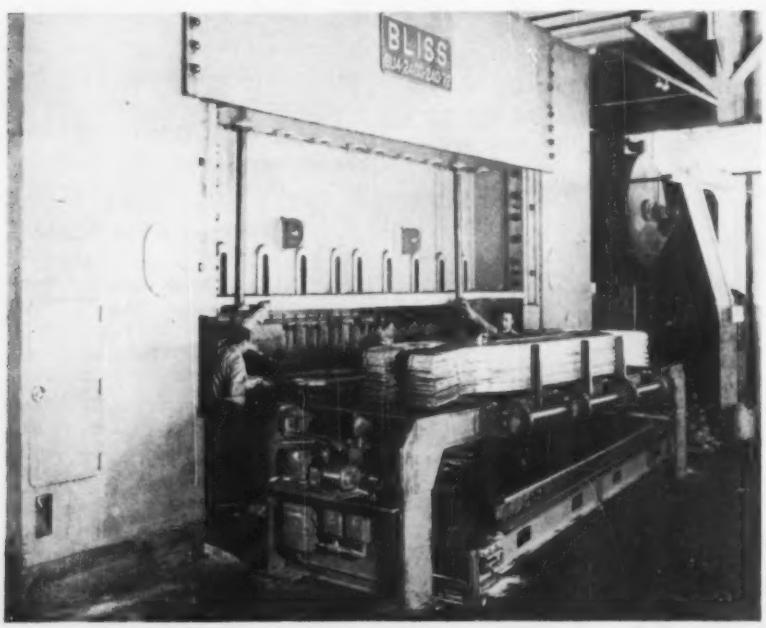
Points to Watch—Another item causing the press builder to check his future price schedules closely: He's beginning to get some automotive inquiries. While July automotive inquiries on heavy presses have been fairly common for the past two years, this is not the historical pattern, and little or no July automotive interest had been expected this year.

But these are inquiries at this stage which have not resulted in sales. Still they represent the first real automotive action since January, and are regarded as a very hopeful sign.

There are two factors worth watching in the current inquiry rate at press manufacturer plants:

(1) Though inquiries have been strong for the last 12 months they have gained at a much higher rate during the last 60 days.

(2) A growing portion of this customer interest is aimed at heavy equipment. Formerly interest and sales have been strongest in the light equipment lines.



CLOSE FIGURING: Press makers are carefully studying production costs in the light of higher material and labor costs. The result will almost certainly be price increases before year's end. (E. W. Bliss Co. photo)

MOLY NEWS

CLIMAX MOLYBDENUM CO. DIVISION • AMERICAN METAL CLIMAX, INC.

Climax Develops an Extremely Tough, Abrasion-resistant Chrome-Moly White Iron

New Alloy Proves Superior in Erosive Applications

A new martensitic white iron has proved exceptionally tough and resistant to abrasion. It's called Alloy 42. Its excellent combination of properties are related to its structure — which consists of hard chrome-moly carbides favorably distributed in a matrix of martensite plus retained austenite.

Tests indicate Alloy 42 is especially economical for parts subject to erosive wear: sand pumps, flotation impellers, sand classifier wear shoes, pug mill blades, brick mold liners and chute liners.

For example, heat-treated Alloy 42 impellers in a 5" sand pump handling coarsely ground taconite ore have already lasted over 1,000 hours. Previous impellers made of a 4.5% Ni, 1.5% Cr type of martensitic iron lasted only 350 to 400 hours.

Because of its toughness, Alloy 42 can also be used where moderate impacts would cause low alloy types of white iron to break or spall. And it may prove more economical than the soft rubber parts or linings now used in various abrasive applications. Its resistance to tearing by tramp coarse materials and chemical attacks by oils and other organic compounds is an obvious advantage.

The recommended composition range is: Carbon 3.00-3.50%; Silicon 0.30-0.60; Manganese 0.60-0.90; Chromium 15.0-18.0; Molybdenum 2.75-3.25.

A Climax bulletin on Alloy 42 discusses melting and casting, molds and shrinkage, heat treatment, structure, physical properties, machinability, welding and cutting. *For a free copy, circle #1 on the coupon.*

Heat Treating Improves the Wear Resistance of Gray Iron

Heat treating can improve many of the properties of gray iron, particularly resistance to wear. Wear resistance in quenched-and-tempered gray iron is many times greater than that of pearlitic irons. With cams and similar parts, hot quenching provides better wear resistance than quenching and hardening to the same hardness. Surface hardening is frequently selected for gray iron because it locally improves wear resistance with minimum distortion.

Why Moly Iron Bulletin #6 contains valuable information on surface hardening, annealing and stress-relieving molybdenum-alloyed irons. This bulletin gives examples of improvements obtained by heat treating gears, cable drums, pump-ring castings, tappets, valve guides and machine tool ways.

Flame hardening the teeth on a sprocket improves wear resistance with minimum distortion.

*For a free copy of **"Why Moly Iron Bulletin #6,"** circle #2 on the coupon.*

Tempering Low-Alloy Creep-Resistant Steels

A recent British paper discusses the roles of chromium, molybdenum and vanadium in low-alloy steels with high creep strength. The relation between creep properties, microstructure changes and carbide composition is given special attention.

*For a copy of **"The Tempering of Low-alloy Creep-resistant Steels Containing Chromium, Molybdenum and Vanadium"** by E. Smith and J. Nutting, circle #6.*

Moly Helps High Alloys Fight Corrosive Attacks

Highly alloyed materials are playing a greater part in combating corrosion. A current paper on these alloys considers the molybdenum-bearing alloys at length and also discusses cobalt-base alloys and silicon-bearing alloys.

*For copies of this paper, **"High Alloys to Combat Corrosion"** by E. D. Weisert, circle #7.*

Thermenol Shows Excellent Resistance to Heat, Corrosion

Thermenol, an iron-aluminum-molybdenum magnetic alloy, compares favorably with other high-temperature materials, and in some cases promises even better service. For unlike many alloys, it doesn't lose tensile strength rapidly up to 1200 F. It also has excellent resistance to oxidizing and sulfur-bearing atmospheres at high temperatures.

*For a copy of **"Iron-aluminum Magnetic Alloy Has Excellent Heat Resistance,"** circle #8.*

Moly in Nickel-base Casting Alloys Improves High Temperature Service

Molybdenum is helping at least two nickel-base alloys to work more effectively in high temperature applications. One of the alloys, with 5% Mo, combines good castability with very good creep strength at temperatures up to 1800 F (much better than that of moly-free alloys). The second, with 10% Mo, shows high resistance to thermal shock.

*For free copies of **"Some Properties of Nickel-base Casting Alloys for High-temperature Service"** by D. R. Wood and J. F. Gregg, circle #3.*

Cast Steels Studied at Low Temperatures

The British Steel Castings Research Association has completed new studies on the effect of melting practice, composition and treatment of steel castings. Five of the seven alloy steels investigated contained molybdenum. The benefits of using molybdenum in low alloy steel castings for low temperature service are clearly shown in comparisons of 1.5% Mn and 1.5% Mn-Mo.

*For reprints of **"The Low-temperature Impact Properties of Cast Steel"** by W. J. Jackson and G. M. Michie, circle #4.*

New Data Available on Low Carbon Bainitic Steels

Studies have been made on new steels based on boron-0.5% Mo. Tensile strengths up to 180,000 psi can now be obtained within the bainitic range with a wide range of cooling rates. Thus these low-carbon bainitic steels offer a good combination of mechanical properties as-rolled or as-air-cooled. These properties can be obtained in large sections because hardenability is high. Good welding properties and tempering characteristics make the steels especially suitable as high-strength weldable steels, forgings, die blocks, etc.

*For copies of **"Low-carbon Bainitic Steels"** by K. J. Irvine and F. B. Pickering, circle #5.*

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Delivery Estimates Start to Stretch

Steel users think more about ordering as Midwest mills lengthen shipping promises.

Reversal of year-old trend to faster delivery likely to spread to other areas.

■ Steel mill delivery promises are beginning to stretch out. And buyers, watching a year-old trend start to reverse, are getting order-minded.

As yet the change is limited to the Midwest where producers are adding a week or more to shipping estimates for many products. These include sheet, strip, hot and cold-finished bar, light plate, merchant wire, linepipe, buttweld pipe, and structurals. (See table below.)

The delivery stretchout, which reflects the better tone in the market, is getting fast reaction from steel users. One buyer, after quickly estimating future needs and ordering advance tonnages remarked, "When deliveries lengthen, it's by months, not weeks."

Some Midwest distributors experienced the same chill when they tried to book more September sheet tonnage at the mills. The request was turned down. The steel service centers then made haste to boost their October orders.

While not yet widespread, the increase in mill shipping promises will probably spread. Some Detroit mills, for example, can still provide fast delivery. But others say they are about booked out on flat-rolled products for September. And they see signs that deliveries are ready to lengthen.

Sheet and Strip — Fall tonnage bookings at the mills are building up slowly, but steadily. For some producers, September is shaping up as the best month since last spring. However, caution by automotive steel buyers is slowing down the rate of October sheet and strip orders. But other buyers are actively lining up tonnages for that month. Some users, turned down on September delivery by their mills, have upped their October requirements.

Enameling iron and electrical sheets are already booked into October in the **Midwest.**

Shapes and Plates—Some slow improvement noticed in **Pittsburgh** and the **Midwest** for both products. Heavy plate is very dead in the **East** with one supplier labeling the present market, "worse than in 1954." Light plate bookings are a little better. But mills must plan bookings on a week to week basis because buyers delay orders as long as possible.

Demand for structurals, especially in the **Midwest,** is improving as more fabricators return to the market.

Clad Plate Prices—Stainless clad plate prices have been revised by major producers. Lukens Steel Co. took the initial action followed by Allegheny Ludlum Steel Corp., and the Claymont Products Dept. of Colorado Fuel & Iron Corp. (New prices appear on p. 100.)

Although after the revision base prices are lower ($24 a ton below the old price in one case), Lukens won't label the action either a price increase or decrease. Final effect on the buyer, it's said, will depend on what he orders and the extras desired.

Actually, the new bases have been stripped of an annealing and pickling extra charge formerly included. Claymont Products Div. of CF&I, calling the move "a clarification of the price structure," says it will give the buyer a better means of comparing solid stainless plate and stainless clad plate prices.

Bar—"Mild" is the word for the pickup in carbon and cold finished bar. August shipments of hot-rolled bars will top July for many mills.

Delivery Promises at a Glance

	Pittsburgh	Chicago	Cleveland	Detroit	East	West Coast
CR Carbon Sheet	2-4 wks	4-6 wks	2-5 wks	3-5 wks	3-5 wks	4 wks
HR Carbon Sheet	1-2 wks	2-4 wks	1-4 wks	2-3 wks	2-3 wks	3-4 wks
CR Carbon Strip	3-4 wks	3-5 wks	2-5 wks	3-5 wks	3-5 wks	4-6 wks
HR Carbon Strip	1-2 wks	2-4 wks	1-4 wks	2-3 wks	2-3 wks	3-4 wks
HR Carbon Bars	1-2 wks	2-4 wks	2-3 wks	2-4 wks	2-4 wks	2-3 wks
CF Carbon Bars	1-4 wks	2-5 wks	1 wk	1-4 wks	1-3 wks	1-2 wks
Heavy Plate	1-4 wks	3-4 wks			2-4 wks	4-6 wks
Light Plate	1-2 wks	3-4 wks	1-4 wks		2-3 wks	4-6 wks
Merchant Wire	1 wk	1-2 wks	1 wk		Stock	3-4 wks
Oil Country Goods	Stock	1-2 wks	Stock		Stock	
Linepipe	2-8 wks	4-6 wks	Stock		2-4 wks	4-6 wks
Buttweld Pipe	Stock	2-4 wks	Stock	Stock	Stock	2-4 wks
Std. Structurals	1-4 wks	2-4 wks		1-4 wks	1-4 wks	4 wks
CR Stainless Sheet	1-4 wks		2-3 wks	1-2 wks	1-2 wks	
CR Stainless Strip	1-4 wks		2-3 wks	1-2 wks	1-2 wks	

COMPARISON OF PRICES

(Effective Aug. 26, 1958)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	Aug. 26 1958	Aug. 19 1958	July 29 1958	Aug. 27 1957
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	5.10¢	5.10¢	4.925¢	4.925¢
Cold-rolled sheets	6.275	6.275	6.05	6.05
Galvanized sheets (10 ga.)	6.875	6.875	6.60	6.60
Hot-rolled strip	5.10	5.10	4.925	4.925
Cold-rolled strip	7.425	7.425	7.17	7.17
Plate	5.32	5.32	5.12	5.12
Plates, wrought iron	13.55	13.55	13.15	13.15
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$10.30	$10.30	$10.30	$10.30
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	9.00
Special coated mfg. ternes	9.55	9.55	9.55	9.55
Bars and Shapes: (per pound)				
Merchant bar	5.675¢	5.675¢	5.425¢	5.425¢
Cold finished bar	7.65	7.65	7.30	7.30
Alloy bars	6.725	6.725	6.475	6.475
Structural shapes	5.50	5.50	5.275	5.275
Stainless bars (No. 302)	45.00	45.00	45.00	45.00
Wrought iron bars	14.90	14.90	14.45	14.45
Wire: (per pound)				
Bright wire	8.00¢	8.00¢	7.65¢	7.65¢
Rails: (per 100 lb.)				
Heavy rails	$5.525	$5.525	$5.525	$5.525
Light rails	6.50	6.50	6.50	6.50
Semifinished Steel: (per net ton)				
Rerolling billets	$80.00	$80.00	$77.50	$77.50
Slabs, rerolling	80.00	80.00	77.50	77.50
Forging billets	99.50	99.50	96.00	96.00
Alloy blooms, billets, slabs	119.00	119.00	114.00	114.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.40¢	6.40¢	6.15¢	6.15¢
Skelp	5.05	5.05	4.875	4.875
Finished Steel Composite: (per pound)				
Base price	6.188¢	6.188¢	5.967¢	5.967¢

	Aug. 26 1958	Aug. 19 1958	July 29 1958	Aug. 27 1957
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.97	$70.97	$70.97	$70.51
Foundry, Valley	66.50	66.50	66.50	66.50
Foundry, Southern Cin'ti	73.87	73.87	73.87	71.65
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	70.47	70.47	70.47	70.01
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	66.50
Ferromanganese 74-76 pct Mn, cents per lb‡	12.25	12.25	12.25	12.75
Pig Iron Composite: (per gross ton)				
Pig iron	$66.49	$66.49	$66.49	$66.42
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$44.50	$44.50	$44.50	$53.50
No. 1 steel, Phila. area	38.50	37.50	36.50	50.50
No. 1 steel, Chicago	44.50	43.50	41.50	50.50
No. 1 bundles, Detroit	37.50	37.50	32.50	50.50
Low phos., Youngstown	46.50	46.50	44.50	55.50
No. 1 mach'y cast, Pittsburgh	51.50	51.50	51.50	59.50
No. 1 mach'y cast, Phila.	49.50	49.50	49.50	56.50
No. 1 mach'y cast, Chicago	53.50	53.50	51.50	53.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	$42.50	$41.83	$40.83	$51.50
No. 2 bundles	29.50	29.50	29.50	41.67
Coke Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.50	$14.50	$15.38	$15.38
Foundry coke, prompt	$18-18.50	$18-18.50	$17.50-$19	$17.50-$19
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	26.50	26.50	26.50	28.50
Copper, Lake, Conn.	26.50	26.50	26.50	28.50
Tin, Straits, N. Y.	94.75†	94.25*	95.50	93.50
Zinc, East St. Louis	10.00	10.00	10.00	10.00
Lead, St. Louis	10.80	10.80	10.80	13.80
Aluminum, virgin ingot	26.80	26.80	26.10	28.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	33.00

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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Trade Bets on Big September Buys

Judging from strength in the market today, next month should be an active one.

Dealers are building inventories in readiness for the expected upturn.

▪ The scrap market is building up to a big September. A general feeling of optimism prevails as dealers take advantage of the pre-Labor Day lull to strengthen inventories wherever they can.

As August entered it final week, scattered sales of scrap throughout the nation were, for the most part, at slightly higher prices. Dealers are not pressing for sales. They want to save their material for the oncoming September rush which almost everyone feels sure is coming.

Enough openhearth scrap changed hands in Chicago and Philadelphia districts however, to raise The IRON AGE No. 1 heavy melting Composite Price 67¢ to $42.50.

Probability that industrial lists will close at higher prices this week gives added support to dealer markets, especially in Detroit and Cleveland. Scattered strikes in scrap generating plants are holding down industrial scrap, adding further strength to dealer prices.

Some dealers who are overloaded with No. 2 bundles are hoping to move them by tying them in with sales of prime grade scrap.

While the trade is getting set for a rush on openhearth grades, the upturn apparently has already started in some areas for foundry scrap and turnings.

Foundry intake increased in the Northeast; turnings went for higher prices in the East, Chicago, and the South.

On the whole, August was a good month for the scrap industry much better than was hoped for a few months ago.

Pittsburgh — The market is stronger this week although not enough to raise prices. Mid-month jockeying involved scattered buys of No. 1 heavy melting at prices ranging from $42 to $45 for a special grade. However, there isn't enough new tonnage to test the market. The trade is confident that tonnage orders will come soon and that mills will be unable to buy for less money.

Chicago — The mild tightening which began last week continues to accelerate. Purchases by smaller mills, plus a strong September outlook, have combined to restrain the trade from making new selling offers to district consumers. Mixed borings and turnings price reported at $22-$23 last week was incorrect. Correct price is $23-$24.

Philadelphia — Broker activity and mill spot buying raised the price of No. 1 heavy melting $1. Scattered orders for turnings, low phos, and electric furnace bundles are drawing tonnage at slightly higher prices. Most dealers, expecting higher prices after Labor Day, are holding on to their best scrap.

New York—Most grades seem to be temporarily pegged at going prices. Export orders and expectation of domestic buying in September are the reasons. Pipe foundries continue to take fair quantities of cast. Stainless 18-8 solids appears to have reached a ceiling of $175-$180.

Detroit — For the most part, dealers are biding their time as they wait for industrial lists to close. Failure of mills to support a dealer market this month is causing some gloom. But dealers are still reluctant to part with material at current prices.

Cleveland—Market is quiet but shipments are good on old orders. There is an undercurrent of strength and dealers are reluctant to sell any big tonnages. Factory bundles are up $1 on appraisal. Tonnage on Cleveland lists this month is about the same as last month but strikes are cutting yield.

St. Louis—Recent advances in prices increased the flow of scrap to the mills. Continuing high mill operating rate is expected to hold openhearth scrap prices at current levels. Railroad specialties and stove plate are off $1.

Birmingham — Scrap prices are generally holding steady, with no large buys reported. One big consumer of turnings entered the market and bought material at $3 above previous prices.

Cincinnati — This market is marking time until September when area mills are expected to resume buying. Prices have firmed up and dealers are willing to sell only small amounts. Foundry business is still down in the truckload class.

Buffalo—Only activity here was a sale of cupola cast and No. 1 machinery cast at $2 higher than last week's quoted price. No. 2 heavy melting and No. 2 bundles are down $1.

Boston—A lull has settled over this market as the holiday week-end approaches. Prices are unchanged.

West Coast — Enough scrap is moving here to supply mills with what little material they need. Mills have good inventories. Some dealers are suffering from the slack business. There are no price changes.

SCRAP PRICES *(Effective Aug. 26, 1958)*

Pittsburgh

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	44.00 to 45.00
No. 1 factory bundles	50.00 to 51.00
No. 2 bundles	32.00 to 33.00
No. 1 busheling	44.00 to 45.00
Machine shop turn.	20.00 to 21.00
Mixed bor. and ms. turn.	20.00 to 21.00
Shoveling turnings	24.00 to 25.00
Cast iron borings	24.00 to 25.00
Low phos. punch'gs plate	49.00 to 50.00
Heavy turnings	35.00 to 36.00
No. 1 RR hvy. melting	48.00 to 49.00
Scrap rails, random lgth.	54.00 to 55.00
Rails 2 ft and under	57.00 to 58.00
RR steel wheels	52.00 to 53.00
RR spring steel	52.00 to 53.00
RR couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	51.00 to 52.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	41.00 to 42.00
Stainless	
18-8 bundles and solids	200.00 to 210.00
18-8 turnings	120.00
430 bundles and solids	110.00 to 115.00
410 turnings	50.00 to 60.00

Chicago

No. 1 hvy. melting	$44.00 to $45.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 dealer bundles	44.00 to 45.00
No. 1 factory bundles	51.00 to 52.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	44.00 to 45.00
Machine shop turn.	22.00 to 23.00
Mixed bor. and turn.	23.00 to 24.00
Shoveling turnings	25.00 to 26.00
Cast iron borings	23.00 to 24.00
Low phos. forge crops	53.00 to 54.00
Low phos. punch'gs plate	49.00 to 50.00
Low phos. 3 ft and under	47.00 to 48.00
No. 1 RR hvy. melting	49.00 to 50.00
Scrap rails, random lgth.	54.00 to 55.00
Rerolling rails	64.00 to 65.00
Rails 2 ft and under	59.00 to 60.00
Locomotive tires cut	54.00 to 55.00
Cut bolsters & side frames	51.00 to 52.00
Angles and splice bars	56.00 to 57.00
RR steel car axles	70.00 to 71.00
RR couplers and knuckles	53.00 to 54.00
No. 1 machinery cast.	53.00 to 54.00
Cupola cast.	47.00 to 48.00
Heavy breakable cast.	41.00 to 42.00
Cast iron brake shoes	43.00 to 44.00
Cast iron wheels	40.00 to 41.00
Malleable	57.00 to 58.00
Stove plate	44.00 to 45.00
Steel car wheels	51.00 to 52.00
Stainless	
18-8 bundles and solids	205.00 to 210.00
18-8 turnings	115.00 to 120.00
430 bundles and solids	110.00 to 115.00
430 turnings	70.00 to 75.00

Philadelphia Area

No. 1 hvy. melting	$38.00 to $39.00
No. 2 hvy. melting	34.00 to 35.00
No. 1 dealer bundles	38.00 to 39.00
No. 2 bundles	24.00 to 25.00
No. 1 busheling	38.00 to 39.00
Machine shop turn.	20.00 to 21.00
Mixed bor. short turn.	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Shoveling turnings	23.00 to 24.00
Clean cast. chem. borings	30.00 to 31.00
Low phos. 5 ft and under	41.00 to 42.00
Low phos. 2 ft and under	43.00 to 44.00
Low phos. punch'gs	43.00 to 44.00
Elec. furnace bundles	39.00 to 40.00
Heavy turnings	33.00 to 34.00
RR steel wheels	44.50 to 45.50
RR spring steel	44.50 to 45.50
Rails 18 in. and under	57.00 to 58.00
Cupola cast.	39.00 to 40.00
Heavy breakable cast.	41.00 to 42.00
Cast iron car wheels	44.00 to 45.00
Malleable	56.00 to 57.00
Unstripped motor blocks	30.00 to 31.00
No. 1 machinery cast.	49.00 to 50.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$38.50 to $39.50
No. 2 hvy. melting	33.50 to 34.50
No. 1 dealer bundles	38.50 to 39.50
No. 2 bundles	26.00 to 27.00
Machine shop turn.	18.00 to 19.00
Mixed bor. and turn.	17.00 to 18.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	17.00 to 18.00
Low phos. 18 in. and under	43.00 to 44.00
Rails, random length	44.00 to 45.00
Rails, 18 in. and under	54.00 to 55.00
No. 1 cupola cast.	42.00 to 43.00
Hvy. breakable cast.	34.00 to 35.00
Drop broken cast.	46.00 to 47.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Cleveland

No. 1 hvy. melting	$41.50 to $42.50
No. 2 hvy. melting	33.50 to 34.50
No. 1 dealer bundles	41.50 to 42.50
No. 1 factory bundles	47.00 to 48.00
No. 2 bundles	28.50 to 29.50
No. 1 busheling	41.50 to 42.50
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	21.00 to 22.00
Cut structural & plates, 2 ft & under	47.00 to 48.00
Drop forge flashings	41.50 to 42.50
Low phos. punch'gs plate	42.50 to 43.50
Foundry steel, 2 ft & under	41.00 to 42.00
No. 1 RR hvy. melting	47.00 to 48.00
Rails 2 ft and under	56.00 to 57.00
Rails 18 in. and under	57.00 to 58.00
Railroad grate bars	18.00 to 19.00
Steel axle turnings	25.00 to 26.00
Railroad cast.	49.00 to 50.00
No. 1 machinery cast.	48.00 to 49.00
Stove plate	44.00 to 45.00
Malleable	61.00 to 62.00
Stainless	
18-8 bundles	195.00 to 200.00
18-8 turnings	105.00 to 110.00
430 bundles	100.00 to 105.00
430 turnings	40.00 to 45.00

Buffalo

No. 1 hvy. melting	$37.00 to $38.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 busheling	36.00 to 37.00
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	28.00 to 29.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	18.00 to 19.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	16.00 to 17.00
Low phos. plate	40.00 to 41.00
Structurals and plate, 2 ft and under	45.00 to 46.00
Scrap rails, random lgth.	47.00 to 48.00
Rails 2 ft and under	59.00 to 60.00
RR steel wheels	44.00 to 45.00
RR spring steel	44.00 to 45.00
RR couplers and knuckles	44.00 to 45.00
No. 1 machinery cast.	45.00 to 46.00
No. 1 cupola cast.	41.00 to 42.00

St. Louis

No. 1 hvy. melting	$39.00 to $40.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 dealer bundles	41.00 to 42.00
No. 2 bundles	30.00 to 31.00
Machine shop turn.	17.00 to 18.00
Cast iron borings	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
No. 1 RR hvy. melting	46.00 to 47.00
Rails, random lengths	48.00 to 49.00
Rails, 18 in. and under	53.00 to 54.00
Angles and splice bars	46.00 to 47.00
Std. steel car axles	64.00 to 65.00
RR specialties	47.00 to 48.00
Cupola cast.	48.00 to 49.00
Heavy breakable cast.	39.00 to 40.00
Cast iron brake shoes	38.00 to 39.00
Stove plate	42.00 to 43.00
Cast iron car wheels	40.00 to 41.00
Rerolling rails	60.00 to 61.00
Unstripped motor blocks	39.00 to 40.00

Birmingham

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	35.00 to 36.00
No. 2 bundles	24.00 to 25.00
No. 1 busheling	35.00 to 36.00
Machine shop turn.	24.00 to 25.00
Shoveling turnings	25.00 to 26.00
Cast iron borings	12.00 to 13.00
Electric furnace bundles	39.00 to 40.00
Elec. furnace, 3 ft & under	37.00 to 38.00
Bar crops and plate	46.00 to 47.00
Structural and plate, 2 ft.	45.00 to 46.00
No. 1 RR hvy. melting	39.00 to 40.00
Scrap rails, random lgth.	46.00 to 47.00
Rails, 18 in. and under	51.00 to 52.00
Angles & splice bars	47.00 to 48.00
Rerolling rails	59.00 to 60.00
No. 1 cupola cast.	54.00 to 55.00
Stove plate	54.00 to 55.00
Charging box cast.	22.00 to 23.00
Cast iron car wheels	39.00 to 40.00
Unstripped motor blocks	42.00 to 43.00

Youngstown

No. 1 hvy melting	$45.00 to $46.00
No. 2 hvy. melting	37.00 to 38.00
No. 1 dealer bundles	45.00 to 46.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	20.50 to 21.50
Shoveling turnings	24.50 to 25.50
Cast iron borings	24.50 to 25.50
Low phos. plate	46.00 to 47.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$28.00 to $29.00
No. 2 hvy. melting	24.00 to 25.00
No. 2 dealer bundles	17.00 to 18.00
Machine shop turn.	8.00 to 9.00
Mixed bor. and turn.	11.00 to 12.00
Shoveling turnings	11.00 to 12.00
Clean cast. chem. borings	24.00 to 25.00
No. 1 machinery cast.	37.00 to 38.00
Mixed yard cast.	35.00 to 36.00
Charging box cast.	34.00 to 35.00
Heavy breakable cast.	34.00 to 35.00
Unstripped motor blocks	24.00 to 25.00
Stainless	
18-8 prepared solids	175.00 to 180.00
18-8 turnings	75.00 to 80.00
430 prepared solids	65.00 to 70.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$36.00 to $37.00
No. 2 hvy. melting	25.50 to 26.50
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	22.00 to 23.00
No. 1 busheling	36.00 to 37.00
Drop forge flashings	34.00 to 35.00
Machine shop turn.	13.00 to 14.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	15.00 to 16.00
Cast iron borings	15.00 to 16.00
Low phos. punch'gs plate	36.00 to 37.00
No. 1 cupola cast.	39.00 to 40.00
Heavy breakable cast.	30.00 to 31.00
Mixed cupola cast.	39.00 to 40.00
Automotive cast.	43.00 to 44.00
Stainless	
18-8 bundles and solids	185.00 to 190.00
18-8 turnings	90.00 to 95.00
430 bundles and solids	95.00 to 100.00
410 turnings	20.00 to 25.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$24.00 to $25.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 dealer bundles	24.00 to 25.00
No. 2 bundles	17.00 to 18.00
No. 1 busheling	24.00 to 25.00
Machine shop turn.	7.00 to 8.00
Mixed bor. and short turn.	8.00 to 9.00
Shoveling turnings	9.00 to 10.00
Clean cast. chem. borings	19.00 to 20.00
No. 1 machinery cast.	32.00 to 33.00
Mixed cupola cast.	30.00 to 31.00
Heavy breakable cast.	28.00 to 29.00
Stove plate	28.00 to 29.00
Unstripped motor blocks	22.00 to 23.00

San Francisco

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	28.00
No. 2 bundles	22.00
Machine shop turn.	15.00
Cast iron borings	15.00
No. 1 RR hvy. melting	32.00
No. 1 cupola cast.	45.00

Los Angeles

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	$27.00 to 28.00
No. 2 bundles	17.00
Machine shop turn.	11.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. furn 1 ft and under (foundry)	43.00
No. 1 RR hvy. melting	33.00
No. 1 cupola cast.	39.00 to 41.00

Seattle

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 2 bundles	22.00
No. 1 cupola cast.	36.00
Mixed yard cast.	36.00

Hamilton, Ont.

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	26.00
No. 1 dealer bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Busheling	20.00
Bush., new fact., prep'd.	30.00
Bush., new fact., unprep'd	24.00
Machine shop turn.	15.00
Short steel turn.	19.00
Mixed bor. and turn.	15.00
Rails, rerolling	39.00
Cast scrap	$45.00 to 50.00

Minerals Bill Dies; Industry Reacts

Copper shows good strength after faltering. Most believe the market is firming.

Lead and zinc are sagging. St. Joseph cuts lead production by 20 pct.

▪ The domestic lead, zinc and copper industries are still on their own.

The Administration's Domestic Minerals Stabilization Bill, which would have subsidized lead and zinc, and stockpiled copper, joins last year's sliding scale tariff proposals in the legislative graveyard.

The final House vote against the bill was 182 to 159.

Copper Stands Up—The reaction to the defeat of the Administration-backed measure was almost immediate. For copper it was gratifying.

The market softened at the first news, but soon began to recoup losses.

Some observers say the removal of copper from the embargo on trade with the Communist bloc, by the Free World Coordinating Committee on East-West Trade, might be the new source of optimism holding up the market.

Embargo Reaction — Others disagree. They point out that Russia has been buying copper wire through British channels for some time. Now they are likely to buy primary metal, but proportionately less wire.

And the word from Washington is that the U. S. may not remove its embargo. As a member of the group, the U. S. may not have a more lenient embargo, but may be more strict. A ruling on this is not expected until October.

Majority of the copper industry believes the current market is fairly firm, based on improving demand.

Lead-Zinc Hurting — Things don't look so rosy over in the lead-zinc camp. The industry has been pondering a market without government help, just in case. The same day as the bill in question went down the drain, one of the nation's largest, and lowest cost, producers announced a 20 pct cutback in production of lead. St. Joseph Lead Co. reduced its mining and milling operations in southeast Missouri to four days, effective on August 25.

The company explains it is "terribly hurt by lead imports." They say, further, that the rate of imports is rising, and that they are producing considerably more metal than they can sell.

Some observers expect a number of smaller, marginal mines to fold up within a few weeks.

Next Step—But the U. S. lead and zinc industry has been fighting for government help for too long to run out of alternatives. There is still the possibility that the President could act on the recommendations of the U. S. Tariff Commission. This avenue was called to his attention by a delegation of Congressmen right after the bill's defeat.

Earlier in the year, the six-man commission declared that imports were definitely doing damage to the domestic lead-zinc industry. But the group split on the solution. Half suggested maximum tariff hikes permitted under our trade agreements, 2.55¢ per lb on lead, and 2 1/10¢ per lb on zinc; plus a quota on imports. If the President acts, he is more likely to accept the suggestion of the other half of the group, tariff of 2⅛¢ per lb on lead, and 1¾¢ per lb on zinc with no quotas.

Also likely to help lead and zinc, although nothing to shout about, is decision by the joint House-Senate Conference Committee on an amendment to the barter bill, which in effect, gives the Secretary of Agriculture almost complete control over the extent of barter.

Aluminum

The skid of aluminum output came to a halt in July, according to the Aluminum Assn. Production was 118,811 tons compared to 115,325 tons the previous month.

This brings the total output for the year through July to 881,372 tons. At this time last year output was 966,168 tons.

Net shipments of sheet and plate were off, from 106,364,000 lb in June, to 104,004,000 lb in July. Foil shipments were also down slightly to 14,455,039 lb, from 14,587,071 lb in June.

Tin prices for the week: Aug. 20—94.625; Aug. 21—94.875; Aug. 22 — 94.875; Aug. 25 — 94.875; Aug. 26—94.75.*

*Estimate.

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.70	24.00	8/1/58
Aluminum ingot	29.00	28.10	8/1/58
Copper (E)	29.50	25-26.50	7/17/58
Copper (CS)	29.50	27.00	8/6/58
Copper (L)	29.50	28.00	7/17/58
Lead, St. L.	10.55	10.00	8/13/58
Lead, N. Y.	10.75	10.75	8/13/58
Magnesium ingot	36.00	34.00	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/6/56
Titanium sponge	195-205	200-280	4/1/58
Zinc, E. St. L.	10.00	10.50	7/1/57
Zinc, N. Y.	10.50	11.00	7/1/57

ALUMINUM: 99% ingot frt allwd. **COPPER:** (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. **LEAD:** common grade. **MAGNESIUM:** 99.8% pig Velasco, Tex. **NICKEL:** Port Colbourne, Canada. **ZINC:** prime western. **TIN:** see above; other primary prices, pg. 95.

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt./frt. allowed)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-3.
1100, 3003	45.7	43.8	42.8	43.3
5052	53.1	48.4	46.9	46.0
6061-0	50.1	45.7	43.9	44.9

Extruded Solid Shapes

Factor	6063 T-5	6063 T-6
6- 8	42.7-44.2	51.1-54.6
12-14	42.7-44.2	52.0-56.5
24-36	43.2-44.7	52.8-57.5
36-38	46.7-49.2	56.9-60.5

Screw Machine Stock—2011-T-3

Size*	¾	⅞-1⅛	1¼-1½	1¾-1⅞
Price	62.0	61.2	59.7	57.3

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.411	$1.884	$2.353	$2.823
.024 gage	1.762	2.349	2.937	3.524

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type→ Gage→	.250 3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade		67.9	69.0	77.9	103.1
AZ31B Spec.		93.3	95.7	108.7	171.3
Tread Plate		70.6	71.7		
Tooling Plate	73.0				

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Shot, blocks		87	

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	49.63		46.86	49.83
Brass, 70/30	43.57	44.11	43.51	46.48
Brass, Low	46.03	46.57	45.97	48.94
Brass, R L	46.89	47.43	46.83	49.70
Brass, Naval	47.83		42.14	51.24
Munts Metal	45.95		41.76	
Comm. Bs.	48.30	48.84	48.24	50.86
Mang. Bs.	51.57		45.67	
Phos. Bs. 5%	68.59		69.09	

Free Cutting Brass Rod 29.28

TITANIUM

(Base prices f.o.b. mill)

Sheet and strip, commercially pure, $8.50-$10.10; alloy, $15.95; Plate, HR, commercially pure, $6.00-$6.75; alloy, $8.75-$9.50. Wire, rolled and/or drawn, commercially pure, $6.50-$7.00; alloy, $10.00-$11.50; Bar, HR or forged, commercially pure, $5.25-$5.50; alloy, $5.25-$6.35; billets, HR, commercially pure, $4.10-$4.35; alloy, $4.10-$4.20.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb conta'd Be. $43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots ..... $ 2.25
Cadmium, del'd ..... $ 1.55
Calcium, 99.9% small lots ..... $ 4.55
Chromium, 99.8% metallic basis... $ 1.31
Cobalt, 97-99% (per lb)....$2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined ..... 39.50 to 50.00
Gold, U. S. Treas., per troy oz. $35.00
Indium, 99.9%, dollars per troy oz.. $ 2.25
Iridium, dollars per troy oz. ...$70 to $80
Lithium, 98% .....$11.00 to $14.00
Magnesium, sticks, 100 to 500 lb. .. 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York .....$240 to $244
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel 69.60
Palladium, dollars per troy oz...$17 to $19
Platinum, dollars per troy oz...$59 to $65
Rhodium .....$120.00 to $125.00
Silver ingots (¢ per troy oz.) 88.625
Thorium, per kg. $43.00
Vanadium ..... $ 3.45
Zirconium sponge ..... $ 5.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
- No. 115 ..... 27.00
- No. 120 ..... 26.25
- No. 123 ..... 25.75

80-10-10 ingot
- No. 305 ..... 31.25
- No. 315 ..... 29.25

88-10-2 ingot
- No. 210 ..... 38.25
- No. 215 ..... 34.00
- No. 245 ..... 30.75

Yellow ingot
- No. 405 ..... 22.75

Manganese bronze
- No. 421 ..... 24.50

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
- 0.30 copper max. 24.50-25.00
- 0.60 copper max. 24.25-24.75

Piston alloys (No. 122 type)...24.25-25.25
No. 12 alum. (No. 2 grade)...21.50-22.00
108 alloy 22.00-22.50
195 alloy 25.00-26.00
12 alloy (0.60 copper max.)...24.25-24.75
AXS-679 (1 pct zinc) 21.75-22.25

(Effective Aug. 25, 1958)

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% 22.50-23.50
Grade 2—92-95% 21.25-22.25
Grade 3—90-92% 20.25-21.25
Grade 4—85-90% 17.50-18.50

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	22½	21¾
Yellow brass	17	15¼
Red brass	19¾	19
Comm. bronze	20⅛	19⅞
Mang. bronze	15⅞	14⅝
Yellow brass rod ends	16¾	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

- No. 1 copper wire 22½
- No. 2 copper wire 20¾
- Light copper 18½
- *Refinery brass 20¼
- Copper bearing material 18½

*Dry copper content.

Ingot Makers Scrap

(Cents per pound, carload lots, delivered to refinery)

- No. 1 copper wire 22¼
- No. 2 copper wire 20¾
- Light copper 18½
- No. 1 composition 19¼
- No. 1 comp. turnings 18¾
- Hvy. yellow brass solids 14
- Brass pipe 15
- Radiators 15½

Aluminum

- Mixed old cast. ..... 12 —12½
- Mixed new clips ..... 15 —16
- Mixed turnings, dry ..... 13 —14

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

- No. 1 copper wire ..... 19¼—19¾
- No. 2 copper wire ..... 17¼—17¾
- Light copper ..... 15¼—15¾
- Auto radiators (unsweated). 11½—12
- No. 1 composition ..... 15½—16
- No. 1 composition turnings.. 14½—15
- Cocks and faucets ..... 12¾—13
- Clean heavy yellow brass ... 10¾—11¼
- Brass pipe ..... 12¾—13¼
- New soft brass clippings .... 13¼—13¾
- No. 1 brass rod turnings .... 10¾—11¼

Aluminum

- Alum. pistons and struts .... 5¼— 5¾
- Aluminum crankcases ..... 9¼— 9¾
- 1100 (2S) aluminum clippings 12¾—13¼
- Old sheet and utensils ..... 9¼— 9¾
- Borings and turnings ..... 6¼— 6¾
- Industrial castings ..... 9¼— 9¾
- 2024 (24S) clippings ..... 10¾—11¼

Zinc

- New zinc clippings ..... 4 — 4¼
- Old zinc ..... 3 — 3¼
- Zinc routings ..... 1¾— 2
- Old die cast scrap ..... 1½— 1¾

Nickel and Monel

- Pure nickel clippings 42-45
- Clean nickel turnings 37-40
- Nickel anodes 42-45
- Nickel rod ends 42-45
- New Monel clippings 28-29
- Clean Monel turnings 20-23
- Old sheet Monel 25-26
- Nickel silver clippings, mixed 18
- Nickel silver turnings, mixed 15

Lead

- Soft scrap lead ..... 6½— 6¾
- Battery plates (dry) ..... 2 — 2¼
- Batteries, acid free ..... 1½— 1¾

Miscellaneous

- Block tin ..... 75 —76
- No. 1 pewter ..... 59 —60
- Auto babbitt ..... 39 —40
- Mixer common babbitt ..... 9½—10
- Solder joints ..... 13¾—13¾
- Siphon tops 42
- Small foundry type ..... 10½—10¾
- Monotype ..... 10¼—10½
- Lino. and stereotype ..... 9¼— 9½
- Electrotype ..... 8¼— 8½
- Hand picked type shells .... 6¼— 6¾
- Lino. and stereo. dross ..... 2¼— 2½
- Electro dross ..... 1¾— 2

IRON AGE

STEEL

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$119.00 *B3*		5.55 *B3*	8.10 *B3*	5.55 *B3*						
	Buffalo, N. Y.	$80.00 *R3, B3*	$99.50 *R3, B3*	$119.00 *R3, B3*	6.50 *B3*	5.55 *B3*	8.10 *B3*	5.55 *B3*	5.10 *B3, R3*	7.425 *S10, R7*	7.575 *B3*			
	Phila., Pa.									7.875 *P15*				
	Harrison, N. J.													15.55 *C11*
	Conshohocken, Pa.		$104.50 *A2*	$126.00 *A2*					5.15 *A2*		7.575 *A2*			
	New Bedford, Mass.									7.875 *R6*				
	Johnstown, Pa.	$80.00 *B3*	$99.50 *B3*	$119.00 *B3*		5.55 *B3*	8.10 *B5*							
	Boston, Mass.									7.975 *T8*				15.90 *T8*
	New Haven, Conn.									7.875 *D1*				
	Baltimore, Md.									7.425 *T8*				
	Phoenixville, Pa.					5.55 *P2*		5.55 *P2*						
	Sparrows Pt., Md.								5.10 *B3*		7.575 *B3*			
	New Britain, Bridgeport, Wallingford, Conn.			$119.00 *N8*						7.875 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.975 *N7, A5*				15.90 *N7* 15.70 *T8*
MIDDLE WEST	Alton, Ill.								5.30 *L1*					
	Ashland, Ky.								5.10 *A7*					
	Canton-Massillon, Dover, Ohio		$102.00 *R3*	$119.00 *R3,* $114.00 *T5*						7.425 *G4*		10.80 *G4*		15.50 *C11*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$80.00 *U1, R3*	$99.50 *U1, R3,W8*	$119.00 *U1, R3,W8*	6.50 *U1*	5.50 *U1, W8,P15*	8.05 *U1, Y1,W8*	5.50 *U1*	5.10 *W8, N4,A1*	7.525 *A1,T8 M8*			8.40 *W8, S9,I3*	15.55 *A1, S9,G4*
	Cleveland, Ohio									7.425 *A5,J3*		10.75 *A5*	8.40 *J3*	
	Detroit, Mich.			$119.00 *R5*					5.10 *G3, M2*	7.425 *M2, D1,D2,P11*	7.575 *G3*	10.80 *D2*		
	Anderson, Ind.									7.425 *G4*				
	Gary, Ind. Harbor, Indiana	$80.00 *U1*	$99.50 *U1*	$119.00 *U1, Y1*		5.50 *U1, I3*	8.05 *U1, J3*	5.50 *I3*	5.10 *U1, I3,Y1*	7.425 *Y1*	7.575 *U1, I3,Y1*	10.90 *Y1*	8.40 *U1, Y1*	
	Sterling, Ill.	$80.00 *N4*				5.50 *N4*			5.20 *N4*					
	Indianapolis, Ind.									7.575 *J3*				15.70 *J3*
	Newport, Ky.								5.10 *A9*				8.40 *A9*	
	Niles, Warren, Ohio Sharon, Pa.		$99.50 *S1, C10*	$119.00 *C10,S1*					5.10 *R3, S1*	7.425 *R3, T4,S1*	7.575 *R3, S1*	10.80 *S1* 10.75 *R3*	8.40 *S1*	15.55 *S1*
	Owensboro, Ky.	$80.00 *G5*	$99.50 *G5*	$119.00 *G5*										
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Aliquippa, Pa.	$80.00 *U1, P6*	$99.50 *U1, C11,P6*	$119.00 *U1, C11,B7*	6.50 *U1*	5.50 *U1, J3*	8.05 *U1, J3*	5.50 *U1*	5.10 *P6*	7.425 *J3,B4*			8.40 *S9*	15.55 *S9*
	Weirton, Wheeling, Follansbee, W. Va.				6.50 *U1, W3*	5.50 *W3*		5.50 *W3*	5.10 *W3*	7.425 *W3,F3*	7.575 *W3*	10.80 *W3*		
	Youngstown, Ohio	$80.00 *R3*	$99.50 *Y1, C10*	$119.00 *Y1*			8.05 *Y1*			7.425 *Y1,J3*	7.575 *U1, Y1*	10.95 *Y1*	8.40 *U1, Y1*	15.55 *J3, Y1*
WEST	Fontana, Cal.	$90.50 *N9*	$109.00 *K1*	$140.00 *K1*		6.30 *K1*	8.85 *K1*	6.45 *K1*	5.85 *K1*	9.275 *K1*				
	Geneva, Utah		$99.50 *C7*			5.50 *C7*	8.05 *C7*							
	Kansas City, Mo.					5.60 *S2*	8.15 *S2*						8.65 *S2*	
	Los Angeles, Torrance, Cal.		$109.00 *B2*	$139.00 *B2*		6.20 *C7, B2*	8.75 *B2*		5.85 *C7, B2*	9.325 *J3* 9.475 *C1*			9.60 *B2*	17.75 *J3*
	Minnequa, Colo.					5.80 *C6*			6.20 *C6*	9.375 *C6*				
	Portland, Ore.					6.25 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$109.00 *B2*			6.15 *B2*	8.70 *B2*		5.85 *C7, B2*					
	Seattle, Wash.		$113.00 *B2*			6.25 *B1*	8.80 *B2*		6.10 *B2*					
SOUTH	Atlanta, Ga.					5.70 *A8*			5.10 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$80.00 *T2*	$99.50 *T2*			5.50 *T2* R3, C16	8.05 *T2*		5.10 *T2, R3,C16*		7.575 *T2*			
	Houston, Lone Star Texas		$104.50 *S2*	$124.00 *S2*		5.60 *S2*	8.15 *S2*						8.65 *S2*	

(Effective Aug. 25, 1958)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras applv.

		SHEETS								WIRE ROD	TINPLATE†		BLACK PLATE
		Hot rolled 18 ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Coke* 1.25 lb. base box	Electro* 0.25 lb. base box	Holloware Enameling 29 ga.
EAST	Buffalo, N. Y.	5.10 *B3*	6.275 *B3*				7.525 *B3*	9.275 *B3*		6.40 *W6*	† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		
	Claymont, Del.												
	Conshohocken, Pa.												
	Coatesville, Pa.	5.15 *A2*	6.325 *A2*				7.575 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.40 *B3*			
	Fairless, Pa.	5.15 *U1*	6.325 *U1*				7.575 *U1*	9.775 *U1*			$10.15 *U1*	$8.85 *U1*	
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	5.10 *B3*	6.275 *B3*	6.875 *B3*			7.525 *B3*	9.275 *B3*,	10.025 *B3*	6.50 *B3*	$10.15 *B3*	$8.85 *B3*	
	Worcester, Mass.									6.70 *A5*			
	Trenton, N. J.												
MIDDLE WEST	Alton, Ill.									6.60 *L1*			
	Ashland, Ky.	5.10 *A7*		6.875 *A7*	6.775 *A7*								
	Canton-Massillon, Dover, Ohio			6.875 *R1*, *R3*									
	Chicago, Joliet, Ill.	5.10 *W8*, *A1*					7.525 *U1*			6.40 *A5*, *R3*, *W8*			
	Sterling, Ill.									6.50 *N4*, *K2*			
	Cleveland, Ohio	5.10 *R3*, *J3*	6.275 *R3*, *J3*		6.775 *R3*		7.525 *R3*, *J3*	9.275 *R3* *J3*		6.40 *A5*			
	Detroit, Mich.	5.10 *G3*, *M2*	6.275 *G3*, *M2*				7.525 *G3*	9.275 *G3*					
	Newport, Ky.	5.10 *A1*	6.275 *A1*										
	Gary, Ind. Harbor, Indiana	5.10 *U1*, *I3*, *Y1*	6.275 *U1*, *I3*, *Y1*	6.875 *U1*, *I3*	6.775 *U1*, *I3*, *Y1*	7.225 *U1*	7.525 *U1*, *Y1*, *I3*	9.275 *U1*, *Y1*		6.40 *Y1*	$10.05 *U1*, *Y1*	$8.75 *I3*, *U1*, *Y1*	7.50 *U1*, *Y1*
	Granite City, Ill.	5.20 *G2*	6.375 *G2*	6.975 *G2*	6.875 *G2*							$8.85 *G2*	7.60 *G2*
	Kokomo, Ind.			6.975 *C9*						6.50 *C9*			
	Mansfield, Ohio	5.10 *E2*	6.275 *E2*			7.225 *E2*							
	Middletown, Ohio		6.275 *A7*	6.875 *A7*	6.775 *A7*	7.225 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	5.10 *R3*, *N3*, *S1*	6.275 *R3*	6.875 *R3*	6.775 *N3*, *S1*	7.225 *N3*, *S1**, *R3*	7.525 *R3*, *S1*	9.275 *S1*, *R3*				$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Donora, Pa. Aliquippa, Pa.	5.10 *U1*, *J3*, *P6*	6.275 *U1*, *J3*, *P6*	6.875 *U1*, *J3*	6.775 *U1*		7.525 *U1*, *J3*	9.275 *U1*, *J3*	10.025 *U1*, *J3*	6.40 *A5*, *J3*, *P6*	$10.05 *W5*, *J3*	$8.75 *U1*, *J3*	7.50 *U1*, *J3*
	Portsmouth, Ohio	5.10 *P2*	6.275 *P2*							6.40 *P2*			
	Weirton, Wheeling, Follansbee, W. Va.	5.10 *W3*, *W5*	6.275 *W3*, *F3*, *W5*	6.875 *W3*, *W5*		7.225 *W3*, *W5*	7.525 *W3*	9.275 *W3*			$10.05 *W5*, *W3*	$8.75 *W5*, *W3*	7.50 *W5*
	Youngstown, Ohio	5.10 *U1*, *Y1*	6.275 *Y1*		6.775 *Y1*		7.525 *Y1*	9.275 *Y1*		6.40 *Y1*			
WEST	Fontana, Cal.	5.85 *K1*	7.525 *K1*				8.275 *K1*	10.575 *K1*			$10.80 *K1*	$9.50 *K1*	
	Geneva, Utah	5.20 *C7*											
	Kansas City, Mo.									6.65 *S2*			
	Los Angeles, Torrance, Cal.									7.20 *B2*			
	Minnequa, Colo.									6.65 *C6*			
	San Francisco, Niles, Pittsburgh, Cal.	5.80 *C7*	7.225 *C7*	7.625 *C7*						7.20 *C7*	$10.80 *C7*	$9.50 *C7*	
SOUTH	Atlanta, Ga												
	Fairfield, Ala. Alabama City, Ala.	5.10 *T2*, *R3*	6.275 *T2*	6.875 *T2*, *R3*	6.775 *T2*					6.40 *T2*, *R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.									6.65 *S2*			

(Effective Aug. 25, 1958)

*7.425 at Sharon-Niles is 7.225

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.725 *B3*	9.025 *B3*	8.30 *B3*					
	Buffalo, N. Y.	5.675 *R3,B3*	5.675 *R3,B3*	7.70 *B5*	6.725 *B3,R3*	9.025 *B3,B5*	8.30 *B3*	5.30 *B3*				8.00 *W6*
	Claymont, Del.							5.30 *C4*		7.50 *C4*	7.95 *C4*	
	Coatesville, Pa.							5.30 *L4*		7.50 *L4*	7.95 *L4*	
	Conshohocken, Pa.							5.30 *A2*	6.375 *A2*	7.50 *A2*	7.95 *A2*	
	Harrisburg, Pa.							5.30 *P2*	6.475 *P2*			
	Milton, Pa.	5.825 *M7*	5.825 *M7*									
	Hartford, Conn.			8.15 *R3*		9.325 *R3*						
	Johnstown, Pa.	5.675 *B3*	5.675 *B3*		6.725 *B3*		8.30 *B3*	5.30 *B3*		7.50 *B3*	7.95 *B3*	8.00 *B3*
	Fairless, Pa.	5.825 *U1*	5.825 *U1*		6.875 *U1*							
	Newark, N. J. Camden, N. J.			8.10 *W10, P10*		9.20 *W10, P10*						
	Bridgeport, Putnam, Willimantic, Conn.			8.20 *W10* 8.15 *J3*	6.90 *N8*	9.175 *N8*						
	Sparrows Pt., Md.		5.675 *B3*					5.30 *B3*		7.50 *B3*	7.95 *B3*	8.10 *B3*
	Palmer, Worcester, Readville, Mass. Mansfield, Mass.			8.20 *B5, C14*		9.325 *A5,B5*						8.30 *A5, W6*
	Spring City, Pa.			8.10 *K4*		9.20 *K4*						
MIDDLE WEST	Alton, Ill.	5.675 *L1*										8.20 *L1*
	Ashland, Newport, Ky.							5.30 *A7,A9*		7.50 *A9*		
	Canton, Massillon, Mansfield, Ohio	6.15* *R3*		7.65 *R3,R2*	6.725 *R3,* 6.475*T5*	9.025 *R3,R2,* 8.775 *T5*		5.30 *E2*				
	Chicago, Joliet, Waukegan, Ill. Harvey, Ill.	5.675 *U1,R3, W8,N4,P13*	5.675 *U1,R3, N4,P13,W8*	7.65 *A5, W10,W8, R5,L2,N9*	6.725 *U1,R3, W8*	9.025 *A5, W10,W8, L2,N8,B5*	8.30 *U1,W8*	5.30 *U1,A1, W8,J3*	6.375 *U1*	7.50 *U1, W8*	7.95 *U1, W8*	8.00 *A5,R3, W8,N4, K2,W7*
	Cleveland, Ohio Elyria, Ohio	5.675 *R3*	5.675 *R3*	7.65 *A5,C13, C18*		9.025 *A5, C13,C18*	8.30 *R3*	5.40 *R3,J3* *E2*	6.375 *J3*		7.95 *R3,J3*	8.00 *A5, C13,C18*
	Detroit, Mich.	5,675 *G3*	5.675 *G3*	7.90 *P3* 7.85 *P8,B5*	6.725 *R5,G3*	9.025 *R5* 9.225 *B5,P3, P8*	8.30 *G3*	5.30 *G3*		7.50 *G3*	7.95 *G3*	
	Duluth, Minn.											8.00 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.675 *U1,I3, Y1*	5.675 *U1,I3, Y1*	7.65 *R3,J3*	6.725 *U1,I3, Y1*	9.025 *R3,M4*	8.30 *U1,Y1*	5.30 *U1,I3, Y1*	6.375 *J3, I1*	7.50 *U1, Y1*	7.95 *U1, Y1,I3*	8.10 *M4*
	Granite City, Ill.							5.40 *G2*				
	Kokomo, Ind.		5.775 *C9*									8.10 *C9*
	Sterling, Ill.	5.775 *N4*	5.775 *N4*					5.30 *N4*				8.10 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.65 *C10*	6.725 *C10,S1*	9.025 *C10*	7.925 *S1*	5.30 *R3,S1*		7.50 *S1*	7.95 *R3, S1*	
	Owensboro, Ky.	5.675 *G5*			6.725 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.675 *U1,J3*	5.675 *U1,J3*	7.65 *A5,B4, R3,J3,C11, W10,S9,C8, M9*	6.725 *U1,J3, C11,B7*	9.025 *A5, W10,R3,S9, C11,C8,M9*	8.30 *U1,J3*	5.30 *U1, J3*	6.375 *U1*	7.50 *U1, J3,B7*	7.95 *U1, J3,B7*	8.00 *A5 J3,P6*
	Portsmouth, Ohio											8.00 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.30 *W5*				
	Youngstown, Ohio	5.675 *U1,R3, Y1*	5.675 *U1,R3, Y1*	7.65 *A1,Y1, F2*	6.725 *U1,Y1*	9.025 *Y1,F2*	8.30 *U1,Y1*	5.30 *U1, R3,Y1*		7.50 *Y1*	7.95 *U1, R3,Y1*	8.00 *Y1*
WEST	Emeryville, Cal. Fontana, Cal.	6.425 *J5* 6.375 *K1*	6.425 *J5* 6.375 *K1*		7.775 *K1*		8.625 *K1*	6.10 *K1*		8.30 *K1*	8.75 *K1*	
	Geneva, Utah							5.30 *C7*			7.95 *C7*	
	Kansas City, Mo.	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.55 *S2*					8.25 *S2*
	Los Angeles, Torrance, Cal.	6.375 *C7,B2*	6.375 *C7,B2*	9.10 *R3,P14, S12*	7.775 *B2*	11.00 *P14, S12*	8.625 *B2*					8.95 *B2*
	Minnequa, Colo.	6.125 *C6*	6.125 *C6*					6.15 *C6*				8.25 *C6*
	Portland, Ore.	6.425 *O2*	6.425 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	6.375 *C7* 6.425 *B2*	6.375 *C7* 6.425 *B2*				8.675 *B2*					8.95 *C7,C6*
	Seattle, Wash.	6.425 *B2,N6*	6.425 *B2*				8.675 *B2*	6.20 *B2*		8.40 *B2*	8.85 *B2*	
SOUTH	Atlanta, Ga.	5.875 *A8*	5.675 *A8*									8.00 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.675 *T2,R3, C16*	5.675 *T2,R3, C16*	8.25 *C16*			8.30 *T2*	5.30 *T2, R3*			7.95 *T2*	8.00 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.55 *S2*	5.40 *S2*		7.60 *S2*	8.05 *S2*	8.25 *S2*

† Merchant Quality—Special Quality 35¢ higher. (Effective Aug. 25, 1958) * Special Quality.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Braeburn Alloy Steel Corp., Braeburn, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire-Reeves Steel Corp., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.
M9 Moltrup Steel Products Co., Beaver Falls, Pa.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham
S12 Sierra Drawn Steel Corp., Los Angeles, Calif.

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING — **Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.**

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½–3 In.		2 In.		2½ In.		3 In.		3½–4 In.	
STANDARD T. & C.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Youngstown *R3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fontana *K1*	*10.75	*26.00	*7.75	*22.00	*4.25	*17.50	*1.75	*16.75	*1.25	*15.75	*0.75	*15.25	0.75	*15.50								
Pittsburgh *J3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Alton, Ill. *L1*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Sharon *M3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fairless *N2*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Pittsburgh *N1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Wheeling *W5*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Wheatland *W4*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Youngstown *Y1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Indiana Harbor *Y1*	1.25	*14.0	4.25	*10.0	7.75	*5.50	10.25	*4.75	10.75	*3.75	11.25	*3.25	12.75	*3.50								
Lorain *N2*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Youngstown *R3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Fairless *N2*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Fontana *K1*	*6.25		*2.25		0.75		1.25		1.75		2.25		2.75									
Pittsburgh *J3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Alton, Ill. *L1*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Sharon *M3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Pittsburgh *N1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Wheeling *W5*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Wheatland *W4*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Youngstown *Y1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Indiana Harbor *Y1*	5.75	*8.0	9.75	*4.0	12.75	0.50	13.25	*0.75	13.78	0.25	14.25	0.75	14.75	*0.50								
Lorain *N2*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50

Threads only, buttweld and seamless 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

(Effective Aug. 25, 1958)

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.84	T-1
18	4	1	—	5	2.545	T-4
18	4	2	—	—	2.005	T-2
1.5	4	1.5	8	—	1.20	M-1
6	4	3	6	—	1.59	M-3
6	4	2	5	—	1.345	M-2
High-carbon chromium					.955	D-3, D-5
Oil hardened manganese					.505	O-2
Special carbon					.38	W-1
Extra carbon					.38	W-1
Regular carbon					.325	W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Cladding	Plate (*L4, C4, A3, J2*) 10 pct	Plate (*L4, C4, A3, J2*) 15 pct	Plate (*L4, C4, A3, J2*) 20 pct	Sheet (*I2*) 20 pct
Stainless Type	302				37.50
	304	28.80	31.55	34.30	40.00
	316	42.20	46.25	50.25	58.75
	321	34.50	37.75	41.05	47.25
	347	40.80	44.65	48.55	57.00
	405	24.60	26.90	29.25	.....
	410	22.70	24.85	27.00	.....
	430	23.45	25.65	27.90	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 38.75; 1 side, 33.10.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer *U1*	5.525	6.50	6.975	.....	.....	.....	14.75
Cleveland *R3*	.....	.....	.....	.....	.....	.....	.....
So. Chicago *R3*	.....	.....	.....	10 10	.....	.....	.....
Ensley *T2*	5.525	6.50	.....	.....	.....	.....	.....
Fairfield *T2*	.....	6.50	.....	10 10	.....	6.60	.....
Gary *U1*	5.525	.....	.....	.....	.....	6.60	.....
Huntington *C16*	.....	6.50	.....	.....	.....	.....	.....
Ind. Harbor *I3*	5.525	.....	6.975	10 10	.....	6.60	.....
Ind. Harbor *Y1*	.....	.....	.....	10 10	.....	.....	.....
Johnstown *B3*	.....	6.50	.....	.....	.....	.....	.....
Joliet *U1*	.....	.....	6.975	.....	.....	.....	.....
Kansas City *S2*	.....	.....	.....	10 10	.....	.....	15.35
Lackawanna *B3*	5.525	6.50	6.975	.....	.....	6.60	.....
Lebanon *B3*	.....	.....	6.975	.....	14.50	.....	14.75
Minnequa *C6*	5.525	7.00	6.975	10 10	.....	6.60	14.75
Pittsburgh *P5*	.....	.....	.....	.....	.....	.....	14.75
Pittsburgh *J3*	.....	.....	.....	10 10	.....	.....	.....
Seattle *B2*	.....	.....	.....	.....	.....	6.75	15.75
Steelton *B3*	5.525	.....	6.975	.....	.....	6.60	.....
Struthers *Y1*	.....	.....	.....	10 10	.....	.....	.....
Torrance *C7*	.....	.....	.....	.....	.....	6.75	.....
Williamsport *S5*	.....	6.50	.....	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	10 10	.....	.....	.....

COKE

	Net-Ton
Furnace, beehive (f.o.b.) Connellsville, Pa.	$14.50
Foundry, beehive (f.o.b.)	$18.00 to $18.50
Foundry oven coke	
Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1958 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length) Semi-Processed	Cold-Reduced (Coiled or Cut Length) Fully Processed
Field			9 875
Armature	11.70	11.20	11.70
Elect.	12.40	11.90	12.40
Special Motor		12.475	
Motor	13.55	13.05	13.55
Dynamo	14.65	14.15	14.65
Trans. 72	15.70	15.20	15.70
Trans. 65	16.30		
		Grain Oriented	
Trans. 58	16.80	Trans. 80	19.70
Trans. 52	17.85	Trans. 73	20.20
		Trans. 66	20.70

Producing points: Beech Bottom (*W5*); Brackenridge (*A3*); Granite City (*G2*); Indiana Harbor (*I3*); Mansfield (*E2*); Newport, Ky. (*A9*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville, Butler (*A7*).

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE Diam. (In.)	GRAPHITE Length (In.)	GRAPHITE Price	CARBON* Diam. (In.)	CARBON* Length (In.)	CARBON* Price
24	84	26.80	40	100,110	10.70
20	72	25.25	35	110	10.70
18	72	25.75	30	110	10.85
14	72	25.75	24	72 to 84	11.25
12	72	26.25	20	90	11.00
10	60	28.00	17	72	11.40
8	48	28.50	14	72	11.85
7	60	28.25	12	60	12.95
6	60	31.50	10	60	13.00
4	40	35.00	8	60	13.30
3	40	37.00			
2½	30	30.25			
2	24	60.75			

* Prices shown cover carbon nipples.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. Quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standard chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

St. ⅜ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk.	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in:	
Pa., W. Va., Ohio	$16.75
Midwest	17.00
Missouri Valley	18.00

(Effective Aug. 25, 1958)

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Simple Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Annl'd ¢/lb.	Merch. Wire Galv. ¢ lb.
Alabama City *R3*	173	187	.....	212	193	8.65	9.20
Aliquippa *J1****	173	190	.....	.....	190	9.00	9.675
Atlanta *A8***	175	192	.....	214	198	8.75	9.425
Bartonville *K2***	175	192	178	214	198	9.10	9.775***
Buffalo *W6*	.....	.....	.....	.....	.....	9.00	9.55*
Chicago *N4****	173	190	172	212	196	8.65	9.325
Cleveland *A6*	.....	.....	.....	.....	.....	.....	.....
Cleveland *A5*	.....	.....	.....	.....	.....	9 00	.....
Crawf'dav. *M4***	175	192	.....	214	198	8.75	9.425
Donora, Pa. *A5*	173	187	.....	212	193	9.00	9.55
Duluth *A5*	173	187	.....	212	193	9.00	9.55
Fairfield, Ala. *T2*	173	187	.....	212	193	9.00	9.55
Galveston *D4*	9.10‡	.....	.....	.....	.....	.....	.....
Houston *S2*	176	192	.....	217	198	9.25	9.80†
Jacksonville *M4*	184-1	197	.....	219	203	9.00	9.675
Johnstown *B1***	173	190	172	.....	196**	8.65	9.325***
Joliet, Ill. *A5*	173	187	.....	212	193	9 00	9.55
Kokomo *C9**	175	189	.....	214	195*	8.75	9.30*
L. Angeles *B2****	.....	.....	.....	.....	.....	9.60	10.275
Kansas City *S2**	178	192	.....	217	198*	9.25	9.80†
Minnequa *C6†*	178	192	177	217	198†	9.25	9.80†
Monessen *P6*	.....	.....	.....	.....	193	8.65	9.20
Palmer, Mass. *W6*	.....	.....	.....	.....	.....	9.30	9.85*
Pittsburg, Cal. *C7*	192	210	.....	.....	213	9.60	10.15
Rankin, Pa. *A5*	173	187	.....	.....	193	9 00	9.55
So. Chicago *R3*	173	187	.....	.....	193	8.65	9.20
S. San Fran. *C6†*	.....	.....	.....	236	.....	9.95	10.50†
Sparrows Pt. *B3***	175	.....	.....	214	198	8.75	9.425
Sterling, Ill. *N4****	175	192	172	214	198	8.75	9.425
Struthers, O. *Y1**	.....	.....	.....	.....	.....	8.65	9.30
Worcester *A5*	179	.....	.....	.....	.....	9 30	9.85
Williamsport *S5*	.....	.....	.....	.....	.....	.....	.....

* Zinc less than .10¢.
** 11-13¢ zinc.
*** .10¢ zinc.
† Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*	.....	10.70	12.90	16.10	19.30
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*	8.95	10.40	12.60	15.60	18.55
Cleveland *A5*	8.95	10.40	12.60	15.60	18.55
Dearborn *S1*	9.05	10.50	12.70	.....	.....
Detroit *D1*	9.05	10.50	12.70	15.70	.....
Detroit *D2*	9.05	10.50	12.70	.....	.....
Dover, O. *C4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60	.....	.....
Franklin Park, Ill. *T8*	9.05	10.40	12.60	15.60	18.55
Harrison, N. J. *C11*	.....	.....	12.90	16.10	19.30
Indianapolis *J3*	9.10	10.55	12.60	15.60	18.55
Los Angeles *C1*	11.15	12.60	14.80	17.80	.....
New Britain, Conn. *S7.1*	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	.....
New Haven, Conn. *D1*	9.40	10.70	12.90	15.90	.....
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. *A1*	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*	8.95	10.40	12.60	15.60	18.55
Trenton, *R4*	.....	10.70	12.90	16.10	19.30
Wallingford *W1*	9.40	10.70	12.90	15.90	18.55
Warren, Ohio *T4*	8.95	10.40	12.60	15.60	18.75
Worcester, Mass. *A5*	9.50	10.70	12.90	15.90	18.85
Youngstown *J3*	9.10	10.55	12.60	15.60	18.55

BOILER TUBES

$ per 100 ft. carload lots cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
Babcock & Wilcox	2	13	40.28	47.21	35.22
	2½	12	54.23	63.57	47.43
	3	12	62.62	73.40	54.77
	3½	11	73.11	85.70	63.93
	4	10	97.08	113.80	85.53
National Tube	2	13	40.28	47.21	35.22
	2½	12	54.23	63.57	47.43
	3	12	62.62	73.40	54.77
	3½	11	73.11	85.70	63.93
	4	10	97.08	113.80	85.53
Pittsburgh Steel	2	13	40.28	47.21	.....
	2½	12	54.23	63.57	.....
	3	12	62.62	73.40	.....
	3½	11	73.11	85.70	.....
	4	10	97.08	113.80	.....

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots for minus 100 mesh

Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over	10.5¢
West of Miss. River	9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd East of Miss. River	10.5¢
West of Miss. River	9.5¢
Canadian sponge iron, del'd in East, carloads	10.5¢
Atomized iron powder, 98% + Fe, 40 mesh,, F.O.B. Easton, Pa., in 100 lb bags	7.7¢
Atomized iron powder, 98% + Fe, F.O.B. Easton, Pa., in 100 lb bags—RZ-365—Freight allowed east of Miss. River	10.5¢
Atomized iron powder, 98% + Fe. Cutting and scarfing grade, F.O.B. Easton, Pa.	8.5¢
Electrolytic iron, annealed, imported 99.5+% Fe	29.5¢
200 mesh	33.0¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe	57.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe	88.0¢ to $2.85
Aluminum, freight allowed	38.00¢
Brass, 10 ton lots	31.1¢ to 47.1¢
Copper, electrolytic	41.50¢
Copper, reduced	40.3¢ to 48.8¢
Chromium, electrolytic, 99.85% min. Fe. 03 max. Del'd	$5.00
Lead, f.o.b. Hammond, Ind.	19¢
Manganese f.o.b. Extron, Pa.	46.0¢
Molybdenum, 99%	$3.60 to $3.95
Nickel	$1.05 to $1.13
Solder powder	13¢ plus met. value
Stainless steel, 302	$1.02
Stainless steel, 316	$1.30
Tin	14.00¢ plus metal value
Tungsten, 99% (65 mesh)	$3.15 (nominal)
Zinc, 5000 lb & over	17.5¢ to 30.7¢

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Full Container Price	30 Containers	20,000 Lb.	40,000 Lb.
	Pct.	Discounts		
½" and smaller x 6" and shorter	49	54	56	57
⅝" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts ½" & smaller x 6" and shorter	49	54	56	57
Lag, all diam. x 6" & shorter	49	54	56	57
Lag, all diam. longer than 6 in.	39	44½	47	48½
Plow bolts, ½" and smaller x 6" and shorter	49	54	56	57

(Add 25 pct for broken case quantities)

Nuts, Hex, HP reg. & hvy.	Full case or Keg price
¾ in. or smaller	60½
⅞ in. to 1 in. inclusive	55½
1⅛ in. to 1½ in. inclusive	58½
1⅝ in. and larger	53½
C. P. Hex, reg. & hvy.	
¾ in. and smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
Hot Galv. Hex Nuts (All Types)	
¾ in. and smaller	46½
Semi-finished Hex Nuts	
⅝ in. or smaller	60½
¾ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
(Add 25 pct for broken case or keg quantities)	
Finished	
⅞ in. and smaller	63
Rivets	
	Base per 100 lb
½ in. and larger	$12.25
	Pct. Off List
7/16 in. and smaller	19

Cap Screws *Discount (Packages)*

	Full Finished H. C. Heat Treat	C-1018 Steel Full-Finished Cartons Bulk
New std. hex head, packaged		
⅝" diam. and smaller x 6" and shorter	40	26
¾", ⅞", and 1" diam. x 6" and shorter	22	3
⅝" diam. and smaller x longer than 6"	8	+13
¾", ⅞", and 1" diam. x longer than 6"	+ 6	+32
¼" through ⅝" dia. x 6" and shorter	58	49
¾" through 1" dia. x 6" and shorter	45	33

Minimum quantity—¼" through ⅝" diam., 15,000 pieces; 1/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

	Quantity	Discount Mach. Screws	Discount Stove Bolts
Plain Finish			
Cartons		60	60
Bulk			
To ¼" diam. incl.	25,000-and over	60	..
5/16 to ½" diam. incl.	15,000-200,000	60	..

Machine Screws & Stove Bolt Nuts

	Quantity	Discount Hex	Discount Square
In Cartons		16	19
In Bulk			
⅝" diam. & smaller	25,000 and over	14	16

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper	
Rolled elliptical, 18 in. or longer, 5000 lb lots	40.00
Electrodeposited	32.75
Brass, 80-20, ball anodes, 2000 lb or more	45.50
Zinc, ball anodes, 2000 lb lots	16.50
(for elliptical add 1¢ per lb)	
Nickel, 99 pct plus, rolled carbon, 5000 lb	1.022§
(Rolled depolarized add 3¢ per lb)	
Cadmium	1.55
Tin, ball anodes $1.13 per lb (approx.).	

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	68.70
Copper sulphate, 100 lb bags, per cwt.	22.15
Nickel salts, single, 100 lb bags	36.00
Nickel chloride, freight allowed, 300 lb	42.00
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums	24.05
(Philadelphia price 24.50)	
Zinc cyanide, 100 lb	60.75
Potassium cyanide, 100 lb drum N. Y.	48.00
Chromic acid, flake type, 10,000 lb or more	30.44

CAST IRON WATER PIPE INDEX

Birmingham	125.8
New York	138.7
Chicago	140.9
San Francisco-L. A.	148.6

Dec. 1955, value, Class B or heavier 6 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

STEEL SERVICE CENTERS

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery‡ Charge	Sheets: Hot-Rolled (18 ga. & hvr.)	Sheets: Cold-Rolled (18 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled (merchant)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.59	9.87	10.13	8.64	8.97	9.05	9.01	10.68				
Baltimore	$.10	8.10	9.00	9.78	8.80	8.76	8.60	8.75	12.43	16.28	15.28	19.83	19.08
Birmingham		8.18	9.45	10.46	8.23	8.56	8.64	8.60	10.56*				
Boston	.10	9.48	10.54	11.55	9.52	9.82	9.73	9.83	13.28*	16.38	15.38	19.93	19.18
Buffalo	.15	8.40	9.15	11.22	8.90	9.35	9.40	9.30	11.15*	16.34	15.15	19.01	18.95
Chicago	.15	8.35	9.60	10.25	8.66	9.04	9.15	9.14	9.30	16.20	15.20	19.70	18.95
Cincinnati	.15	8.49	9.65	10.60	8.98	9.42	9.71	9.46	9.46	16.52	15.52	20.02	19.27
Cleveland	.15	8.33	9.60	10.35	8.78	9.28	9.54	9.25	11.95*	16.31	15.31	19.81	19.06
Denver	.20	9.60	11.84	12.94	9.63	9.96	10.04	10.00	11.19				20.84
Detroit	.15	8.58	9.85	10.60	9.03	9.41	9.71	9.45	9.66	15.46	15.48	18.61	19.23
Houston		8.10	8.60		8.15	8.45	8.05	8.10	11.10	16.20	15.25	19.65	18.95
Kansas City	.20	9.02	10.27	10.82	9.05	9.38	9.46	9.42	9.87	20.02	15.47	20.02	19.27
Los Angeles		8.25	10.30	12.10	8.90	8.85	8.70	8.75	12.10*	17.05	16.10	21.05	20.35
Memphis	.15	8.55	9.80		8.60	8.93	9.01	8.97	12.11*				
Milwaukee	.15	8.48	9.73	10.38	8.80	9.18	9.37	9.28	9.54	16.34	15.34	19.84	19.09
New York	.10	8.97	10.23	10.66	9.74	9.87	9.84	10.00	13.31*	16.19	15.19	19.74	18.99
Norfolk	.20	8.20			8.90	8.65	9.20	8.90	10.70				
Philadelphia	.10	8.10	9.00	10.02	8.79	8.87	8.60	8.75	11.61*	16.11	15.11	19.66	18.91
Pittsburgh	.15	8.60	9.95	11.05	8.76	9.05	9.15	9.14	11.40*	16.20	15.20	19.70	18.95
Portland		10.00[1]	11.75[2]	13.30[3]	11.95[4]	11.50[5]	11.10[6]	9.85[7]	16.00	18.50	17.45	20.75	20.25
San Francisco	.10	9.45	10.85	11.10	9.55	9.70	9.60	9.80	13.10	17.05	16.10	21.05	20.35
Seattle		9.95	11.15	12.20	10.00	9.70	9.80	10.10	14.05	17.15	16.35	20.65	20.15
Spokane	.15	10.10	11.30	12.15	10.15	9.85	9.95	10.25	14.20		17.35	21.55	21.05
St. Louis	.15	8.69	9.94	10.61	9.04	9.42	9.63	9.52	9.93	16.58	15.58	20.08	19.33
St. Paul	.15	8.94	10.19	10.86	8.99	9.45	9.53	9.37	9.81		15.41		19.21

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. **All sizes except 18 and 16 gage.

†† 10¢ zinc. ‡ Deduct for country delivery. * C1018—1 in. rounds. [1] 10 ga. x 36" x 120"; [2] 20 ga. x 36" x 120"; [3] 26 ga. x 30" x 96"; [4] ⅛" x 1" in lots of 1000 to 9999; [5] sheared plate ¼" x 84" in lots of 1000 to 9999; [6] 3" x 5.70" in lots of 1000 to 9999; [7] M-1020—1-in. rounds in lots of 1000 to 9999.

(Effective Aug. 25, 1958)

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	.....
Birmingham *R3*	62.00	62.50*	.....	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	.....
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	66.00	66.50	66.50	67 00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Everett *M6*	67.50	68.00	68.50	.....	.....
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.50	68 40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	68 00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66 50	67.00	67.50	.....
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	68.50	69.00	69.50	74.00
Youngstown *Y1*	.....	.....	66.50	67.00	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31–0.69 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1*, *I4* (Globe Div.), $78.00; Niagara Falls (15.01–15.50), $101.00; Keokuk (14.01–14.50), $103.50; (15.51–16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery to 18 pct.

† Intermediate low phos.

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	37.25	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	39.25	40.00	41.25	42.25	45.00	45.75	71.75	54.75	64.75	36.00	30.00	36.75	31.00
Sheets	48.50	49.25	51.25	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	40.00	40.75	42.00	42.75	45.50	45.25	69.25	52.50-52.75	61.50	35.75	32.00	32.50	32.50

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; Vandergrift, Pa., *U1*; Washington, Pa., *W2*, *J2* Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*; Detroit, *M2*

Strip: Midland, Pa., *C11*; Waukegan, Cleveland, *A5*; Carnegie, Pa., *S9*; McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa., *W2*; W. Leechburg, Pa., *A3*, Bridgeville, Pa., *U2*; Detroit, *M2*; Canton, Massillon, O., *R3*; Harrison, N. J., *D3*; Youngstown, *J3*; Sharon, Pa., *S1*; Butler, Pa., *A7*; Wallingford, Conn., *U3* (plus further conversion extras); *W1* (.25¢ per lb higher); New Bedford, Mass., *R6*; Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7*; S. Duquesne, Pa., *U1*, Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1*, *F1* Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A5*; Massillon, O., *R5*, S. Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A3*; Waukegan, *A5*; Canton, O., *T5*, *R3*; Ft. Wayne, *I4*; Detroit, *R5*; Gary, *U1*; Owensboro, Ky., *G5*; Bridgeport, Conn., *N8*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*, Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

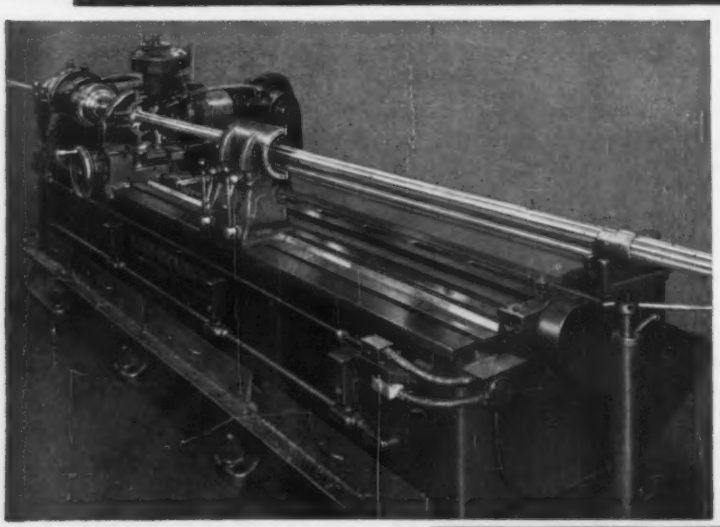
Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*; S. Chicago, *U1*.

Plates: Baltimore, *E1*; Brackenridge, Pa., *A3*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind., *I2*; Middletown, *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R5*; Coatesville, Pa., *C15*; Vandergrift, Pa., *U1*; Gary, *U1*.

Forging billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R5*; Watervliet, *A3*; Pittsburgh, Chicago, *U1*· Syracuse, *C11*; Detroit, *R5*; Munhall, Pa., S. Chicago, *U1*; Owensboro, Ky., *G5*; Bridgeport, Conn., *N8*.

(Effective Aug. 25, 1958)

A "SHORT-CUT" to . . . L-O-N-G Splines



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These quick facts about Lees-Bradner SH Spline Hobbing Machines make them the most versatile of their type ever made:

- Extra long beds available to hob splines up to 144" between centers.
- Large hole in work spindle handles pieces up to 6" in diameter.
- No clumsy obstructions to interfere with loading and unloading.
- Machines operate with push-button controls within easy reach of operator.
- Can hob either straight or helical splines plus spur and helical gears.
- For the complete story send for your free SH Spline Hobber brochure.

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FERROALLOY PRICES

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-1.00% max. Si.

0.02% C....	41.00	0.50% C....	38.00
0.05% C....	39.00	1.00% C....	37.75
0.10% C....	38.50	1.50% C....	37.50
0.20% C....	38.25	2.00% C....	37.25

4.00-4.50% C, 60-70% Cr, 1-2% Si.. 28.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si 27.50
0.025% C (Simplex) 36.75
0.10% C, 52-57% Cr, 2.00% max Si. 37.50
7-8 ½% max C, 50-55% Cr, 3-6% max Si 22.50
7-8 ½% max C, 50-55% Cr, 3% max Si 25.00

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Per lb chromium, contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.31
0.50% max. C	1.31
9 to 11% C, 88-91% Cr, 0.75% Fe...	1.40

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (⅛" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads	$1.29
Ton lots	1.31
Less ton lots	1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Carloads, delivered, lump, 3-in. x down, packed.

Price is sum of contained Cr and contained Si.

	Cr	Si
Carloads, bulk	27.50	14.20
Ton lots	32.75	15.65
Less ton lots	34.35	17.30

Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Ca, 60-65% Si, 3.00 max. Fe.

Carloads	25.65
Ton lots	27.95
Less ton lots	29.45

Calcium-Manganese—Silicon

Cents per lb of alloy, lump, delivered, packed.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	24.25
Ton lots	26.15
Less ton lots	27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ¼ in. x 12 mesh.

Ton lots	21.15
Less ton lots	22.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots	18.45
Ton lots	19.95
Less ton lots	21.20

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	19.20
Ton lots to carload packed	21.15
Less ton lots	22.40

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.25
Johnstown, Pa.	12.25
Neville Island, Pa.	12.25
Sheridan, Pa.	12.25
Philo, Ohio	12.25
S. Duquesne	12.25

Add or substract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk	14.80
Ton lots packed in bags	17.20

Spiegeleisen

Per gross ton, lump, f.o.b. Palmerton, Pa., and Neville Island, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	45.75
Ton lots	47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads	34.00
Ton lots	36.00
250 to 1999 lb	38.00
Premium for Hydrogen - removed metal	0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn 25.50

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton (Bulk)	Less
0.07% max. C, 0.06% P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80.85% Mn, 5.0-7.0% Si ...	28.60	31.40	32.60

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk	12.80
Ton lots, packed	14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet	15.10
Packed, pallets, 3000 lb up to carloads	16.50

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.

	Ton lots, packed	Carloads, packed
96.75% Si, 1.25% Fe..	24.20	22.90
98% Si, 0.75% Fe	24.95	23.65

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk	7.70
Ton lots, packed	10.50

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si....	14.20	75% Si....	16.40
65% Si....	15.25	85% Si....	18.10
	90% Si....	19.50	

Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.

Openhearth	3.20
Crucible	3.30
High speed steel (Primos)	3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
100 to 1999 lb..	2.40	3.30	4.55

(Effective Aug. 25, 1958)

Alsifer, 20% Al, 40% Si, 40% Fe, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads, bulk	10.35¢
Ton lots	11.70¢

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.28

Ferrocolumbium, 50-50%, 2 in. x D, delivered per pound contained Cb.

Ton lots	$4.00
Less ton lots	4.05

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Sb plus Ta $3.80

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.. $1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $5.00 unitage, per gross ton $120.00
10 tons to less carload $131.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ..... $2.15 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. $1.41
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.38

Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohio, freight allowed per lb.

Carload, bulk lump	18.50¢
Ton lots, packed lump	20.50¢
Less ton lots	21.00¢

Vanadium oxide, 86-89% V_2O_5 per pound contained V_2O_5 .... $1.38

Zirconium, per lb of alloy

35-40% f.o.b. freight allowed, carloads, packed	27.25¢
12-15%, del'd lump, bulk-carloads	9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload $5.50

Bortram, f.o.b. Niagara Falls.

Ton lots per pound	45¢
Less ton lots, per pound	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ..... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots.. $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up

10 to 14% B	.85
14 to 19%	1.20
19% min. B	1.50

Grainal, f.o.b. Cambridge, O., freight, allowed, 100 lb and over

No. 1	$1.05
No. 79	50¢

Manganese-Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

Ton lots (packed)	$1.46
Less ton lots (packed)	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots 2.15

RAILWAY EQUIPMENT
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RAILWAY CARS
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STANDARD GAUGE CARS
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REBUILT — GUARANTEED ELECTRICAL EQUIPMENT
SYNCHRONOUS MOTORS
3-Phase—60 Cycle

Qu.	HP	Make	P.F.	Volts	R.P.M.
1	1750	G.E.	100	2300	3600
1	1500	G.E.	80	4150/2400	900
1	1500	Whse.	80	2200	514
2 (new)	1450	Whse.	80	4160	450
1	920	G.E.	80	2200/440	300
1	700	Wt. Mfg.	100	440	300
1	450	Whse.	100	2200	128
2	350	G.E.	100	2300	900
1	300	Whse.	80	2300	900
1	300	G.E.	800	2300/440	600

(5)—G.E., O.I.S.C., 2500 K.V.A. Transformers 3 phase, 60 cycle, 14490/13110 Y. Prim., 2300/4000-Y Sec. (Very late type.)
(Immediate Shipment from Seattle.)

SWITCHGEAR IN CUBICLES
Magnetically operated breakers
Draw-out Type
(1)—Whse. 1200 Amp., Air Breaker, type 75 DH, 7.2 K.V., 500 M.V.A., Int. cap.
(5)—G.E., 1200 Amp., Air Breakers, type AM, 5 K.V., 100 M.V.A., Int. Cap.
(1)—Whse., 600 Amp., O.C.B., type B-20-A, 13.8 K.V., 250 M.V.A., Int. Cap.
(2)—Whse., 600 Amp., O.C.B's, type F-100, 15 K.V., 100 M.V.A., Int. Cap.
(5)—G.E., 600 amp., O.C.B's., type FKR-225, 15 K.V. 150 M.V.A., Int. Cap.

OUTDOOR OIL CIRCUIT BREAKERS
3-Pole—Electrically Operated

Qu.	Amps.	KV	Make	Type	Int. Cap.
1	400	72	Whse.	G-11	500-MVA
1	600	69	G.E.	FK-339	500-MVA
1	600	37	G.E.	FHKO-236	500-MVA
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Hard-Hit Detroit Shows New Life

A small group of optimists believe things are looking up in the Motor City.

But a lot of factors, including uncertainty over auto labor negotiations, are holding back prospective sales.

▪ For the first time in quite a while, the feeling is a little better in Detroit. Not all machinery dealers share this sentiment and among those who do none is ready to say the outlook is rosy.

But a number of dealers here are willing to agree it is looking a little brighter, even though it is harder to close a sale than a year ago. There is fair interest being shown in punch presses, for one thing.

Pattern Shops Active — Pattern shops are showing signs of greater activity. A number of dealers view these signs with optimism, claiming it should forecast a similar business improvement in Detroit's die shops.

Since die programs for 1959 model automobiles have passed from the scene there has been little activity in the die shops. Whether the pattern shop pickup makes itself felt in the die shops should be known in about six weeks or so.

Handling Equipment Moves—A dealer specializing in heavier equipment reports he is experiencing a healthy pickup in material handling equipment, particularly overhead bridge cranes. But most of this equipment, he says, is heading for out of town steel mills which are going ahead with expansion or modernization programs. In some cases, the initial inquiries were made as much as nine months to a year ago.

Production equipment is another story. Some dealers report modest to substantial increases in sales of production machinery, at least comparatively speaking.

Gains in August—One firm says August unit and dollar sales have shown a 100 pct increase over July, which was a poor month, and the number of inquiries have picked up. Even so, this same dealer says the improvement "isn't anything to make a song and dance about in the street."

And there are enough dealers around who still believe Detroit buyers need a little shove before they get the ball rolling. Dragging auto industry labor negotiations are still acting as a brake on production equipment sales locally.

Smaller manufacturers tell machinery salesmen they have orders for automobile parts, but not releases. Releases alone aren't expected to push customers into the market place, but it is almost certain to improve their outlook. Detroit's unsettled labor situation is still acting as a damper on unrestricted optimism.

Slow to Commit—Manufacturers hesitate to commit themselves to new expenditures for equipment at a time when they aren't sure they'll get the releases soon. A strike in the auto plants would leave them equipment they can't use. And, they say, they aren't using what they have now anyway.

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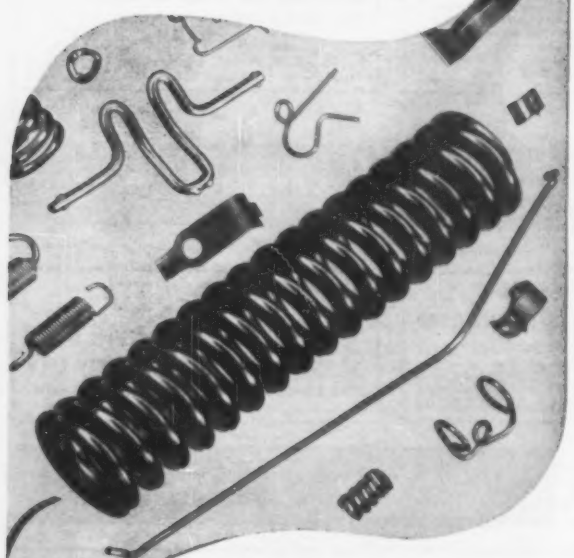

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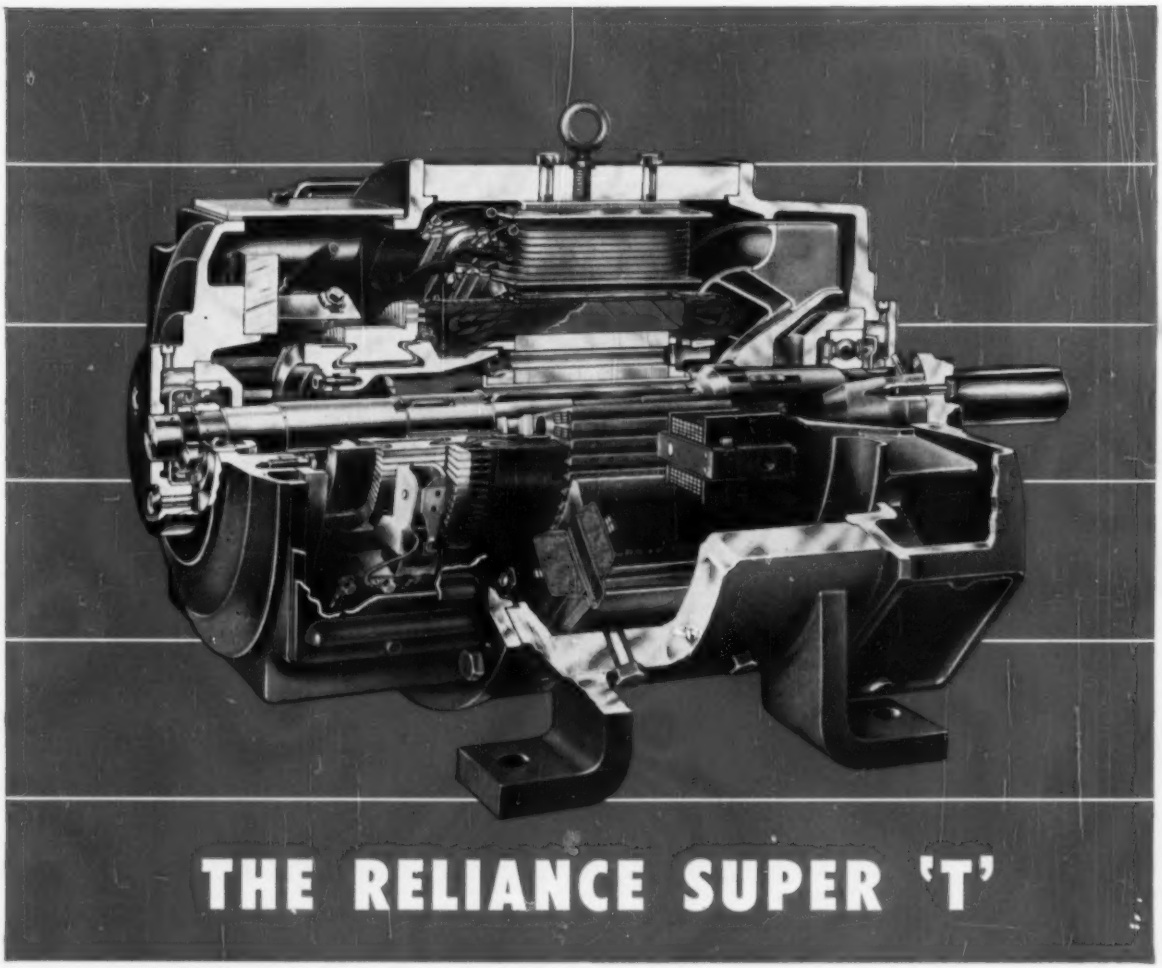

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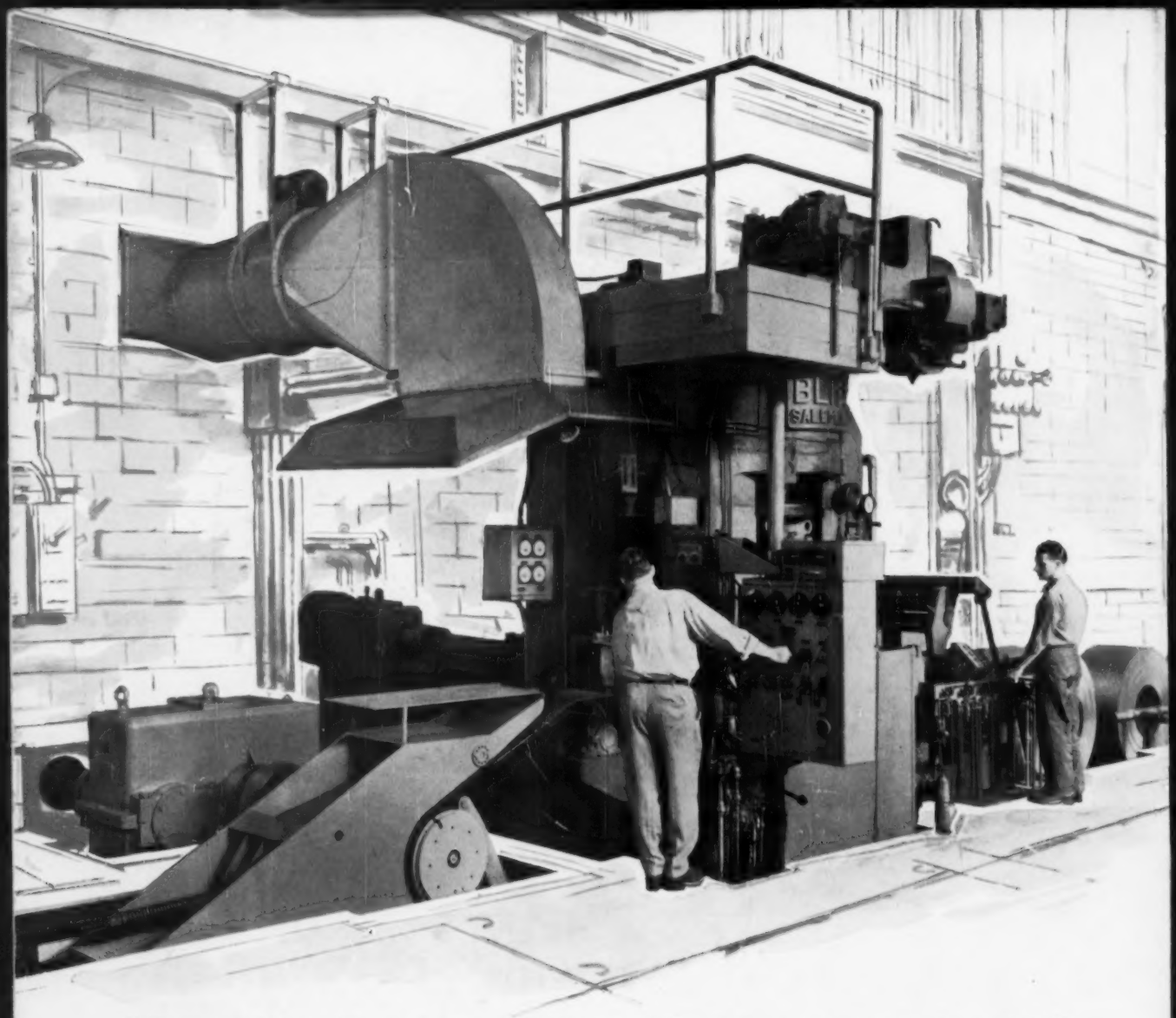

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